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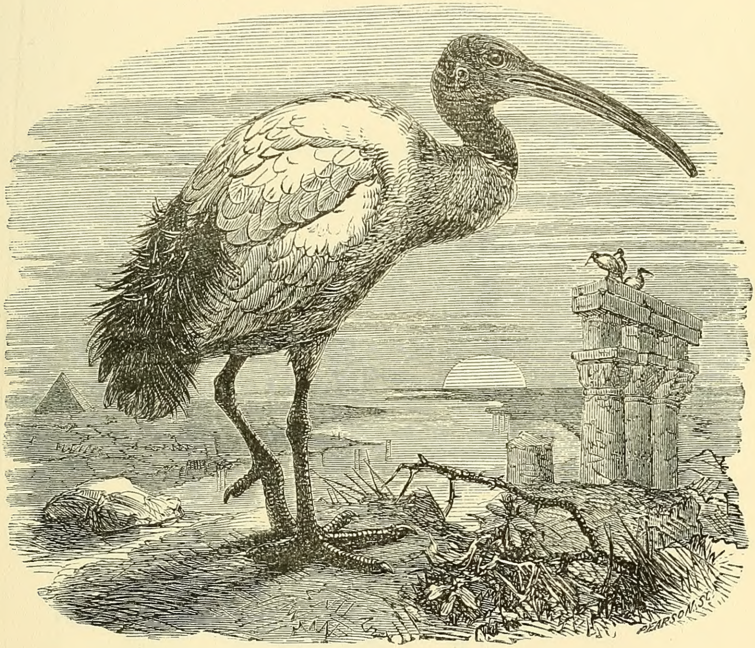

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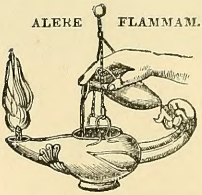
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PREFACE.

In concluding the twenty-second volume of 'The Ibis,' little remains to be said by way of Preface. The assistance from our fellow workers which has been so freely given to us from the commencement of the present series has not been withheld during the past year. To them, both for favours past and to come, our cordial thanks are due.

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ERRATA ET CORRIGENDA.

Page Line
110, 9, for SEMITORQUATUS read SUBTORQUATUS.
268, 33, for Scops read Scopus.
293, 12, for *rubrofrontata* read *rufofrontata.*

THE IBIS.

FOURTH SERIES.

No. XIII. JANUARY 1880.

I.—*Ornithological Notes from the Neighbourhood of Cape San Antonio, Buenos Ayres.* By Ernest Gibson, F.Z.S.

[Continued from 'The Ibis,' 1879, p. 424.]

12. Conurus patagonus. "Barranquero."

Very abundant, but not a resident. From the middle of April to the end of November they pass and repass over our land, coming from the S.W. in the morning, and returning in the evening. They are generally most numerous in the colder months; and my daily notes give no instance of any seen during the months of December, January, February, and March. Sometimes a solitary individual passes; but they are really gregarious, the flocks averaging, say, twenty. On some occasions, and particularly in the afternoon, these flocks may be counted by the hundred. While flying, the members of each party call frequently to one another, as well as to any other flock. The cry is loud, short, but not altogether inharmonious. In the morning they fly low, and frequently sweep quite close down to the ground in a compact body. The native boys often kill one or two birds out of a flock when it passes near them, by taking advantage of this habit and throwing a twisted piece of fencing-wire into their midst. In the morning the flocks generally adopt a line which takes them over several of our woods, where they alight (as if tired and dubious of their way) while they chatter among themselves for a few minutes, and then take to flight again, sometimes following the calls of another passing flock, or induce the latter to settle beside them and share the consultation. In the evening again they fly high, and rarely alight.

Now the direction all these birds take is towards the rincones, and though I have not actually found them feeding there; the contents of various crops examined have invariably proved to be vegetable, apparently the inner stems or young shoots of some esparto or other grass ("shoots or buds of some plant or grass," my notes say, "white, tender, about $\frac{1}{8}$ inch long, and slender"). This, however, does not quite agree with what Mr. Durnford found to be their food in the Chuput valley, whence, in November, he writes, "They fed on the young leaves of a species of thorn, the stomach of one shot on the 24th November being crammed with these;" and again, from Baradero, in the north of this province, that they feed "chiefly on buds and the seed of sena-sena, a species of *Acacia*, very common here."

None of these visiting our district pass the night here; and the nearest breeding-locality is, I suppose, the cliffs or barrancas (hence the name "Barranquero") of the arroyos on this side of the Sierras de Tandil.

They are not very shy (though more so than *Bolborhynchus monachus*), and frequently alight on the corrales and trees in the immediate vicinity of houses. Indeed I have been told that they are rather partial to the roofs of ranchos in some districts, where, in the early morning, they make havoc with the thatch, and rouse the inmates with their noise.

The flight is powerful and rapid, but rather wavering, as if the lengthy tail were inadequate to the duty of keeping its owner steady.

Italians and other foreigners shoot them for the pot; but I fancy that, however savoury, *C. patagonus* is rather a tough morsel.

13. Bolborhynchus monachus. "Loro."

In thousands. All the woods are full of their great nests, with their bright-coloured talkative denizens; all day long rises their noisy chatter, drowning almost every other sound in wood and garden; and, lastly, all the apples, pears, peaches, and medlars in said garden meet with their but too thorough appreciation.

This species, like the last, is gregarious, feeding in flocks and building in communities.

It is one, too, that I have rather an animosity against; for, like the Lapwing (*Vanellus cayennensis*) in the plains, it plays the part of sentinel to all its feathered neighbours. One steals gently through the underwood, stalking some wary bird of prey or flock of tree-building Teal, and glancing up in a deprecatory way at the Perroquets' nests—but all in vain: the subdued chatter suddenly becomes an ominous silence (sufficient betrayal in itself); a hundred pairs of black beady eyes survey the intruder from the nests and neighbouring branches; and then there follows the whirring of as many wings, while a row arises that would put all the Rooks that ever "caw'd" to shame. Gone is the warned quarry, while the exasperated writer of these notes makes a hasty calculation as to which is the largest group of Perroquets, and knocks over half a dozen accordingly, "to encourage the rest."

The nests are frequented all the year round; and it is of rare occurrence to find any large one totally deserted during the day.

During the summer and autumn the thistle is the principal food of *B. monachus*. In the former season the flowering thistle-heads are cut off, and generally carried to the top of the nearest tree, there to be pulled to pieces for the sake of the green kernel. In the autumn, when the ripe seeds have fallen, they are sought for on the ground.

Early morning, just between daybreak and sunrise, is the favourite hour for their depredations in the garden, though scores frequent it during the day also. They never carry off the fruit, but gnaw at it as it hangs, abandoning one apple for another, and that for a third, in a most destructive manner.

To show how little does shyness enter into their constitution, I have known seventy-five to be shot in the garden in the course of a forenoon, the fowler standing in the open, close to a dead tree, which formed their favourite perch on arriving from the surrounding woods. The Basques and Italians who come from the neighbouring township for a day's Perroquet-shooting, scorn to fire at any group that will not yield four or five dead birds at least, and, indifferent shots as they are, kill as many as they can carry. Apropos of these fellows, I once came upon one who, having just reloaded his old gun, was in the act of recapping it. To do so he had placed the muzzle against a fallen tree, and, with the butt jammed into the pit of his stomach, was pulling up the dog-heads with one hand while he put on the caps with the other, "con que me fuí" ("upon which I went"), as the Spaniards would say; for I incontinently turned and fled!

The flight of *B. monachus* is rapid, with quick flutters of the wings, which seem never to be raised to the level of the body, nor yet brought sufficiently forward. Like *Conurus patagonus*, too, the straight unexpanded tail fails to keep the bird on an even keel as it were, first one side rising higher and then the other.

While the presence of Carancho or Chimango is ignored, any other bird of prey is generally mobbed when it first appears in the woods. All the Perroquets rise in a regular crowd, and hover over and above it, screaming and chattering angrily.

Young birds are sometimes taught to speak; but their articulation is, as a rule, indistinct. I remember hearing of one, however, which was seized and carried off by a Carancho, giving utterance to its despair in a singularly appropriate exclamation—"Ay de mi, ay de mi" (alas! alas!). Imitations of poultry &c. are very faithfully rendered. One, which had escaped from its owner, long retained the hoarse "Pretty Poll" it had acquired in captivity, no doubt to the envy of its uneducated relatives, and to my frequent bewilderment as I strolled through the wood it frequented.

Breeding-Notes.—The nests are generally suspended from the extremities of branches, to which they are firmly built or woven in. The new nests consist only of two chambers, the porch and nest proper, and are built and inhabited by a single pair of birds. These become gradually added to, till plenty of them come to weigh perhaps a quarter of a ton each and are of a bulk enough to fill a large cart. Thorny tala twigs (no branches), firmly interlaced, form the only material; and there is no lining to the chambers, even in the breeding-season. Some old forest trees have seven or eight of these huge masses suspended to their branches, while the ground underneath is strewn with twigs and the remains of fallen nests. The entrance to the chambers is almost invariably underneath, or, if on the side, is protected by the overhanging eave, doubtless in both cases as a safeguard against the attacks of the opossum (*Didelphys aurita*). These entrances lead into a porch or outer chamber; and the latter communicates with the breeding-chamber. There is no interior communication between these sets of apartments; and each set is inhabited, in the breeding-season at least, by only one pair of "Loros." The number of pairs perhaps never exceeds a dozen, even with the largest nests. Repairs are carried on all the year round; but additions and new nests are only formed towards the spring.

Opossums are frequently found in one or other of the upper chambers, the entrance having been made too high, and so affording access. But though they take up their abode there, they cannot force their way into the remainder of the nest; and the Perroquets refuse to be driven away. In fact, the latter are most aggravatingly obstinate on the question of their manorial rights. Notwithstanding all our efforts, two or three nests are now established in the garden itself, in some fine old pine trees; and there the birds sit all day and hack off the twigs, or descend onto the fruit-trees and eat peaches. I have picked off these squatters through the day, and banged whole handfuls of shot into the nests at night, besides frequently pulling down the latter; but the "Loros" could give Bruce's famous spider heavy odds in the perseverance line of business, and beat it then; so it is not surprising that they have had the best of the warfare.

A species of Teal breeds in the nests of *B. monachus*; and in one case I found an opossum domiciled in an upper chamber, Perroquets occupying all the others but one, in which a Teal was sitting on eggs.

The breeding-season does not begin till about the 1st of November; but I have taken eggs as late as the 19th of December. Seven and eight are the largest clutches taken; but I have never seen more than six of these hatched out. As I said before, the eggs are laid on the thickly matted flooring of the second or inner chamber, and without any preparatory lining.

Thirty-one specimens give an average measurement of $1\frac{5}{40}\times\frac{32}{40}$. The largest is $1\frac{8}{40}\times\frac{33}{40}$, and the smallest $1\times\frac{31}{40}$. They are white in colour, but of a dull or opaque white, very thin-shelled, and, besides being elongated in appearance, have generally their greatest diameter exactly equidistant from the two ends; so that, in fact, they cannot be said to have a big and a small end.

14. Columba picazuro.

(I had supposed this to be *C. maculosa*, but now learn that *C. picazuro* is more likely to be our species, as it is that of Buenos Ayres, *C. maculosa* occurring near Mendoza and again, further south, in Patagonia.)

Common, but only abundant in the winter months. Those few seen during the summer have remained to breed; but the majority make their appearance about the beginning of May, and leave at the end of September.

In the months of June and July the "chamico" (*Stramonium*) principally supplies this Pigeon with food, the nutritive oily seeds then falling from the ripened seed-vessels, and attracting flocks of from ten to a hundred of this species. At the end of August I have found the crop filled with leaves of the "carretilla" (a trefoil), while in May and August large flocks frequent the offal-ground of the killing-establishment. Indeed I have more than once observed it at recently skinned carcasses of sheep, before the Caranchos and Chimangos had made their appearance.

At night they roost on the summits of the highest tala trees, arriving at certain favourite spots just before sundown, but never exceeding a hundred in any one locality.

The voice, as Mr. Hudson justly remarks, is the most agreeable Dove-melody conceivable; and at certain seasons our woods seem filled with its soft murmurs.

A few frequent our garden; and they have twice bred there; but *C. picazuro* is rather a timid bird, and prefers, as a rule, the quietness of the woods.

Breeding-Notes.—It breeds in the months of November and beginning of December, the nest, a shallow light structure of sticks and twigs, being placed either in the centre of the tree or at the extremity of a branch, at a height of generally fifteen feet from the ground. One was constructed in a pollard acacia in the garden, being lodged among the thick young shoots, but close to the trunk of the tree.

Six years' researches have only yielded me as many nests of *C. picazuro*—two in 1873, and four in 1875. These six nests only contained *one* egg each; and as it happened that they were all more or less incubated, I came to the conclusion that here was a Pigeon which departed from the usual rule, and, instead of two eggs, laid only one. The evidence in support of the case is, I think, sufficiently conclusive; and I should now like to learn if the fact has already been recorded, and if this exception to the general rule is unique *.

The six eggs average $1\frac{25}{40} \times 1\frac{5}{40}$, the largest being $1\frac{29}{40} \times 1\frac{5}{40}$, and the smallest $1\frac{22}{40} \times 1\frac{4}{40}$. The variation in size is very considerable; and the same may be remarked of the shape, the shortest specimen having the greatest diameter, for example.

15. COLUMBULA PICUI.

This species was not uncommon in the winter of 1874, two or three small flocks of from two to half a dozen frequenting the garden and lucern-patch. In 1876 I caught a glimpse of one in the garden, also during the winter months; but, with this solitary exception, I have no note of its appearance, either before or since 1874.

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* [The Crowned Pigeons (*Goura*) and several other Pigeons that have bred in the Zoological Society's Gardens lay but one egg.—EDD.]

It struts and runs about the ground in the usual pigeon-fashion, and is by no means shy.

16. Zenaida maculata.

Very abundant, indeed even more so than *Bolborhynchus monachus*. In the breeding-season every tree or bush seems to contain a nest, and the sitting birds rise at every step one takes.

It feeds on thistle and other seeds, and is a great frequenter of our patio (courtyard), where it associates with various other birds, and secures a share of the débris from the kitchens.

Not so stately in its gait as *C. picazuro*, its familiarity and pretty ways still render it a general favourite. I may also note that it is less gregarious in its habits than *C. picazuro*.

Breeding-Notes.—The breeding-season lasts from the beginning of September to the end of March. The nests are placed in any tree or bush, sometimes within two or three feet of the ground. A large densely foliaged coronillo tree often contains two or three nests with eggs, to say nothing of those of former years. These sometimes serve as the basis of a new nest; but, as a rule, a fresh site is chosen annually; and the platform-like structure of dead sticks and twigs, occasionally cushioned with some dry grass or a few feathers, is quickly ready for the two eggs.

The eggs are white, like those of *C. picazuro*, but of a greater diameter in proportion to their length. Twenty-five specimens average $1\frac{7}{40} \times \frac{35}{40}$, and vary from $1\frac{11}{40} \times \frac{36}{40}$ to $1\frac{4}{40} \times \frac{33}{40}$.

17. Guira piririgua (Vieill.). Native name "Uraca."

Common, but irregular in its appearance. It is most abundant in the winter; and only a few remain through the summer. It is a noteworthy fact that the latter should be the case here; for at Baradero, in the north of the province, it is exactly reversed. Mr. Durnford writes, "A few remain with us all the winter, but the majority leave after the breeding-time."

Here it is gregarious, the flocks ranging up to twenty in number. These frequent the woods and, occasionally, the swamps.

In the winter mornings, just at sunrise, one frequently surprises them in the woods, enjoying the grateful warmth of the sun in a rather peculiar fashion: they all have their backs to it, and drop the wings in such a way as to expose that sparsely-feathered part to the heat. In roosting, again, they crowd together in a row on some horizontal branch in a well-sheltered corner, facing different ways in exactly alternate order; so that the arrangement of the drooping tails makes the group look rather puzzling at first, till one becomes acquainted with the habit.

In flight it is slow and very feeble, and on alighting on a tree or, more noticeably, on the ground, the long tail is like to make its owner perform an involuntary somersault.

The general cry is a harsh scream, with which all intruders are greeted; but it has also a rarer and much more musical note, in the utterance of which it is so jealous that I could never yet get a glimpse of the bird in order to see the way in which it is produced. It consists of a regular gamut, beginning at the high note, and descending with great fidelity through four or five others, till it dies away. The notes are equally regular in time and duration, and most charmingly plaintive and musical in sound.

Natives have told me that young birds, taken from the nest, can be taught to speak, which I do not consider unlikely, from the strange construction of the tongue.

As I said, any intruder is received with the harsher language; and the whole flock will congregate on the surrounding trees (the summits of which are generally preferred) within a few yards of him.

Guira piririgua, as may have been gathered from the foregoing notes, is by no means shy, and not only may be closely approached in the woods, but ventures of its own accord among the buildings and yards of the head station. I once saw a solitary individual in the garden, however, whose existence was being rendered miserable by the persistent attacks and persecution of a specimen of that well-named species *Pitangus bellicosus*.

To the list of food furnished by Mr. Durnford ("snails, slugs, and bits of meat or offal") I may add a small frog, about the size of half a walnut, and which is sought for in the lucern-patch. This is swallowed entire, as I have often found on dissection of the birds.

Breeding-Notes.—Before my arrival in Buenos Ayres, I was aware of the beauty and unique style of colouring of the egg, and consequently have always hunted diligently for nests; but I regret to say that my researches, though not altogether fruitless, have not been so well rewarded as they deserve. The natives, in answer to my inquiries, told me that it bred only in the autumn, which information, as far as my experience goes, has proved to be correct. This agrees with Mr. Durnford's Baradero statement, that it has "two broods in the season."

One nest I heard of was placed among tall dead thistles (off the ground), in the plains, but near a house. It had eggs; but of its construction I could gather nothing from my informant. Time, end of summer.

The second case consisted of a single egg, brought to me some time in autumn. The nest, situated in one of the woods of the head station, seemed to be nothing more nor less than a deserted Wood-Pigeon's. No birds seen.

The particulars of my only personal discovery I will extract verbatim from my note-book:—"18th March, 1876. Clutch of four, considerably incubated. Birds first observed on 10th inst. Generally only a pair about, but on one occasion observed no less than fourteen. Nest placed in top and centre of a very thick coronillo tree, about nine feet from the ground. Size of a Thrush's, and consists entirely of thorny twigs, with a lining of *green* elder-tree leaves."

These four eggs have an everage measurement of $1\frac{19}{40} \times 1\frac{7}{40}$; consequently they are larger than might have been expected from the size of the bird, besides being more spherical than oval in their shape. It is to their appearance, though, that I would more particularly allude. The ground-colour is a pure pale blue, over which is spread a white incrustation of lime, in such a way that it resembles a piece of lace thrown over the egg. The latter marking being in relief also, adds to the peculiarity of the egg, and, with the exception of that of *Nothura maculosa*, makes it the most beautiful and striking object in my collection.

18. CHRYSOPTILUS CRISTATUS. Native name "Carpintero."

Not uncommon, by which I mean that every large wood contains at least one pair. The group of woods surrounding the head station boasts of two pairs; and during the last two years one of them has bred in the garden.

Its beauty, familiarity, and clear metallic cry render it a most noticeable and general favourite.

The flight is rapid, though low, and never long sustained, and is marked by alternate rises and falls.

What struck me as a peculiarity was the habit of frequently perching on the top of a tree or bush, or on one of the branches, though its most general attitude is the regular Woodpecker one—against a tree-trunk, and supported by its tail. In this position, with the mottled yellow and black plumage relieved by the conspicuous crimson crest, and the head turned watchfully to one side as it rings out the well-known call, no bird looks more attractive.

As our tala woods contain any amount of old trees, and are infested by thousands of insects and grubs, it is surprising this species does not increase. However, traces of its indefatigable researches are visible nearly everywhere; and I count a score of old breeding-places in the course of an hour's walk.

C. cristatus will coolly survey one from within a few yards' distance, retreating from tree to tree if approached too closely, but rarely dodging behind tree-trunks or showing much trace of suspicious fears. Nay, the very boldness with which it utters its cry indicates a total disregard for bipeds and shot-guns. The annexed breeding-notes witness to its confidence when nesting.

Breeding-Notes.—The excavation for the nest is begun as early as September; but the eggs are only laid during the first half of October. The hole is generally commenced where some branch has decayed away; but care is taken that the remainder of the tree is sound. It opens at a height of from six to nine feet from the ground, and is excavated to a depth of nearly a foot. Occasionally it is sufficiently wide to admit of one's hand; but such is not always the rule. No preparation is made for the eggs beyond the usual lining of some chips of wood.

The pair which frequented the garden excavated a hole in a paraiso tree, and bred there for two consecutive years. The tree stood near one of the walks; and on any one passing, the sitting bird immediately showed its head at the aperture, like a jack-in-the-box, and then flew away. Last year this pair actually bred in one of the posts of the horse-corral, notwithstanding the noise and bustle incident to such a locality. While waiting there, at sunrise, for the herd of horses to be shut in, I used often to knock at the post, in order to make the Woodpecker leave its nest; but the bird seemed indifferent to such a mild attack, and would even sit still while a hundred horses and mares rushed about the corral or hurled themselves against the sides of it. In another case I had worked with hammer and chisel for half an hour, cutting a hole on a level with the bottom of a nest, when the female first demonstrated her presence by flying out, almost into my face. This last nest contained four (considerably incubated) eggs, which I took. Happening to pass the spot a fortnight after, I inspected the hole, and was surprised to find that it had been deepened, and other five eggs laid, while the entrance I had cut was the one now used by the birds. The nest was again resorted to the following year, and a brood hatched out; but since then a pair of Wrens have occupied the place, to the exclusion of the rightful owners.

The glossy pear-shaped eggs (four or five to the nest) have an average measurement of $1\frac{2}{40}$, or $1\frac{3}{40} \times \frac{33}{40}$. A dozen specimens show a variation in length of from $1\frac{1}{40}$ to $1\frac{5}{40}$, but otherwise present no noteworthy peculiarity.

I once saw two or three young, full-fledged, which had been taken from the nest. They were quickly tamed, and used to sit in the warm sun and look out for red ants, but, unfortunately, did not live long.

19. Geositta cunicularia.

This is a most common bird in the campo or plains, to which it is confined, though one may notice it about the borders of any wood also, should there be a biscachero situated near. It has a trick of rising in front of one, flying a few yards, and alighting again—a performance which it continues to repeat in a manner that soon makes its dull uninteresting appearance familiar to a stranger. I don't think I ever saw more than one pair frequenting any biscachero; nor is it ever gregarious in its habits. The flight is fairly quick and strong, but never prolonged; and it chooses the ground to alight on in preference to trees or thistles. There its attitude is upright, and in gait &c. it approaches nearer the Thrushes. From this, and the reddish hue of the plumage, I have often taken it at the first glance for the Red Oven-bird (*Furnarius rufus*).

From never having dissected a specimen, I am unable to state the nature of its food; nor yet have I ever observed it feeding in the camp.

Breeding-Notes.—*G. cunicularia* is one of our earliest-breeding birds, eggs being usually taken in the first half of September, the range extending from the 28th of August to the 5th of November, according to my notes. On the 16th of August I have seen the excavation of a nest begun. This (with us at least) is invariably situated in the brow of one of the burrows of a biscachero (colony of *Lagostomus trichodactylus*); and as a new one is made every year, it is often difficult to tell which hole to open up. The passage varies in length from two to four feet, with a slight downward tendency, and terminates in a cavity shaped like a cocoa-nut, but a little larger. This is prepared for the reception of the eggs by a pile or cushion of soft dry grass, sometimes very sparse. The slope of the passage I have always found to be correctly calculated, so as not to disconcert the bird by a possible emergence into the open air should the ground fall away behind the burrow. The bird sits close, and may often be excavated with the nest.

Three is the general number of eggs laid; and I only once recollect taking a nest with four. The colour is white. Twenty-four specimens give an average measurement of $\frac{38}{40} \times \frac{28}{40}$. The variation in size is pretty considerable.

Hirundo leucorrhoa (Vieill.) not unfrequently occupies and breeds in a deserted nest of *Geositta cunicularia*.

20. MOLOTHRUS BONARIENSIS.

A species but too common, as my oological experiences have often proved.

One sees it everywhere—in the plains, the woods, and the swamps. It is one of the most regular and abundant frequenters of the patios or courtyards, where the beautiful glossy black plumage of the male reflects the sunlight in all the metallic tints of blue, green, purple, and violet, as it runs about within a few yards of the observer, or gives utterance to its note (a peculiar gurgle, as if it had water in its throat). It has the Starling-like habit of craning up its head to observe any distant or suspicious object, and, also like that bird, may often be seen perched on the backs of the cattle or sheep.

At times, generally in the winter months, as far as some insufficient notes bear me out, it gathers into flocks; and these flocks seem to consist principally of males. However, it is at all times semigregarious in its habits.

Though it lays in the nests of a considerable number of other birds, the Sparrow (*Zonotrichia pileata*, Bodd.) is the most highly distinguished of all in that respect, and is the only one I have ever seen feeding the young bird. The latter follows its foster-mother for some time after leaving the nest, and, with open gape, may be seen perpetually clamouring for food, which the unfortunate little Sparrow must find hard to supply in sufficient quantity.

I may here insert the following note, dated end of February :—" Saw what I took to be two young of this species, perched on the back of a sheep. Both were in the usual immature grey plumage ; but in addition one had a dark patch on the back of head, another on neck, and a third on the back, embracing part of the wings." I have never since seen a specimen with similar markings, the type being, as already noted, of a uniform grey in the young.

Independent of its parasitical habits, it causes great destruction among the smaller birds by puncturing and sucking their eggs on every possible occasion. Bitter experience has taught me the folly of ever leaving any nest of eggs till the full clutch should be laid ; for some of these black thieves are sure to be watching one's actions, with a result that may be imagined but is too painful to describe.

The food is very varied, as might be inferred from the general distribution of the bird ; and nothing, either of an animal or vegetable nature, seems to come amiss to it. In company with *Amblyrhamphus holosericeus,* it takes a too kind interest in the maize-patch, and also frequently associates with *Pseudoleistes virescens,* on the principle, I suppose, that " birds of a feather flock together "—*P. virescens* being semiparasitical, worse luck to it !

Breeding-Notes.—*M. bonariensis* is parasitical on the following birds :—the Sparrow (*Zonotrichia pileata*), Wren (*Troglodytes furvus*), Red Oven-bird (*Furnarius rufus*), *Pseudoleistes virescens,* Thrush (*Turdus rufiventris*), *Chrysomitris magellanica, Leptasthenura ægithaloides, Progne tapera Lichenops perspicillata,* Scissor-Bird (*Milvulus tyrannus*—ten species in all, though this list may doubtless be easily added to.

My specimens were mostly taken in one season ; so that I can only state approximately the duration of the breeding-season—namely, from 20th October to 10th January. It is likely, however, that it begins to breed earlier.

Four was the largest number taken out of one nest (that of a Wren) ; and these were in various stages of incubation.

Forty-seven specimens average $\frac{35}{40} \times \frac{29}{40}$, with some considerable variation. They are round in shape, and strong-shelled, the colour a glossy white or bluish white.

21. Furnarius rufus. (Red Oven-bird.) Native name "Hornero."

That this species is abundant I need not say; and it is also probably one of the best-known of our Buenos-Ayrean birds. It is confined almost entirely to the woods; for the open plains are unsuited to its building-habits. But any rancho, however solitary, can boast of a pair, as it only wants something to perch its nest upon.

Its appearance is uninteresting, though its gait (which is like that of a gigantic Robin) is rather amusing. The only note or cry it possesses is also rather peculiar, being a succession of loud (but not unmelodious) short notes, accompanied by a corresponding agitation of the wings, similar to, but more rapid than, that of the Cock when it crows. The wings, however, do not strike the body. It is by no means chary of its voice either, and may be heard constantly, not only through the woods, but about the houses; for it is nearly as fearless as the Sparrow.

The flight, again, resembles that of a Thrush, though perhaps it is neither so rapid nor so strong.

Breeding-Notes.—Well might Mr. Durnford remark that "its breeding-habits are rather irregular;" for it begins to build in the autumn, and sometimes takes all the winter to finish its nest. The work is mostly done in the morning; and how carefully the mud is mixed and tempered (in little balls) may be inferred from the strength of the nest. When once dry it will easily support a man's weight; and my usual method of getting at the eggs is by cutting a hole in the side with a strong knife. The naturalist cannot but wonder at the extraordinary instinct which teaches the bird how to break the regular round of the foundation in order to form the entrance, to make that entrance of such a nature as to be easily defended by the parent bird against small quadrupeds while it is inaccessible to an opossum or a human hand, and finally, to unite the walls at and over the entrance by true scientific curves. Nothing but an illustration can convey an idea of the nest to those who are unacquainted with it; but for that purpose I may refer my readers to an example in the British Museum.

Apropos of the latter (which is from the other side, the Banda Oriental), I may note that it seemed decidedly bigger than our Buenos-Ayrean nests, and that I was struck by something wrong about the situation of the entrance—namely, that it was on the *left-hand* side instead of the *right*. My impression is that in Buenos Ayres the entrance is invariably on the right hand—a supposition which now remains to be verified.

The nest is placed on the branch of a tree, roof of a house, buttress of a bridge, telegraph-post, top of a stake, or any similar situation. To show how regardless the architects are of man's presence, I may mention that it is not infrequent for a nest to be built on one of the posts of the shearing-corral, notwithstanding the attendant noise and bustle. Of course no concealment of the nest is ever attempted; a satisfactory site is the only thing looked for.

Two nests I have seen which were built on the ground—a most unaccountable situation. One was within fifty yards of a wood; but as it was also only ten from a swamp, I came to the conclusion that the builders had been the two laziest Oven-birds in all the province, and had found themselves unequal to the task of carrying the building-material to the wood.

The lining of the nest only consists of a little dry grass; and the eggs are consequently often much soiled with mud.

Mr. Hudson has drawn attention to the attacks the Oven-bird has to sustain from *Progne tapera*, the latter always forming its own nest in that of the former, and not being content, like *Leptasthenura ægithaloides*, to wait till the proper occupants have done with it.

Four is the largest number of eggs laid, I think; and these may be taken from 15th September to the end of December. A series of thirty-two specimens gives an average measurement of $1\frac{3}{40} \times \frac{33}{40}$. The variation in size is very great, ranging through about $\frac{6}{40}$. The eggs are rather pear-shaped, and quite white in colour.

22. AMBLYRHAMPHUS HOLOSERICEUS.

This handsome bird is only abundant while the maize (of which we annually cultivate two or three acres) is ripening—March, April, and part of May. During the remainder of the year it is confined to the swamps, and is there not only local in its habits, but extremely rare. My journal for the last two years does not contain over a dozen notices of it, except during the above-mentioned months, when, indeed, such entries occur as "May 17th. Counted flock of thirty-six in maize-patch, of which about ten were in immature plumage; also saw a pair in a swamp, accompanied by three young."

Once, to my surprise, I saw two or three in one of the woods at the end of August, a circumstance so unusual that I took a special note of it.

The young, or those in immature plumage, I have only observed in the autumn.

To see such a flock as is mentioned above, or to watch a pair in one of our fens, gives me the keenest pleasure. In the latter case the tall dark green rushes (on the tops of which the birds are perched) contrast beautifully with the jetty black and mandarin-orange of the plumage, while the loud alarm-notes soon come to be recognized by the ornithologist when associated with a feathered creature so charming.

It is never very shy, least of all so when gathered in flocks, and may be easily approached within shot; but if only wounded, there is no bird quicker in making its escape among weeds and brushwood, winding its way through them like the Corn-Crake or Landrail.

The flight is fairly strong, though not rapid or otherwise particularly noticeable.

Besides the above-mentioned note of alarm or warning, this bird has a singularly melodious whistle, very rarely uttered, and which, indeed, I have only heard some three times. It consists of, first, a short indistinct note, which is followed by a long clear plaintive whistle, and finishes with three or four other insignificant notes similar to the first. But it is the strength and purity of the prolonged whistle that is so admirable, with something human about its sweet and tender cadences. The fact is, the first time I heard it I could have continued to sit my horse for hours in that swamp and listen, cold winter's day though it was, riding-boots full of water and all!

Those I have dissected, mostly shot at the maize, had, of course, their crops principally filled with broken or entire grains of the same; but two or three had, in addition, a good many small beetles, entire.

Two which I had winged or wounded slightly I endeavoured to tame; but though they took food readily enough, they were very restless, and died within three or four days.

Breeding-Notes.—That *A. holosericeus* breeds in the swamps there can be no doubt; but its extreme rarity has put it out of my power to give much information on the subject. The only nest I ever obtained was brought to me by one of our shepherds, with the following notes:—"Nov. 15th. Nest taken in a swamp (in the neighbourhood of which I had twice or thrice seen the birds previously); in size, shape, materials, and construction resembled that of our Thrush (*Turdus rufiventris*), and was built in, or attached to, some reeds or rushes. Both birds seen."

The two eggs measured respectively $\frac{39}{40} \times \frac{30}{40}$ and $1\frac{1}{40} \times \frac{30}{40}$. In shape similar to those of the Starling, and in colour also, pale blue. One had no markings at all; but the other showed a very few small spots, light lilac and dark brown, and one dark brown streak about two lines long, but semicircular.

The above nesting-notes and eggs coincide with a description of those of this bird given, I think, in one of Dr. Burmeister's books or papers.

23. PAROARIA CUCULLATA.

Curiously enough, this pretty bird and sweet songster is now common in our district, while twenty-five years ago it was not to be found nearer than Dolores, sixty miles to the north-west.

It remains during the whole year, and breeds with us. Quite a wood-frequenting bird, one rarely sees it either in the plains or about the swamps. It is not at all shy, and, particularly in the winter months, may be seen every day in the patio, looking for its share of food from the kitchens, in company with various other birds. One of our men was very successful in trapping them there; and even adult birds soon became tame after being caged. In Buenos Ayres it is one of the most common and prized of caged birds. Those I have seen were fed principally on thistle-seeds, millet, soaked bread, fruit, &c. &c. The leisurely sweet whistle is well known, and, as I have found, is not very difficult of imitation. I have kept a bird responding to me for some time before it discovered the nature of its rival. The young accompany the parents till well on into the winter, but do not sing or acquire their full plumage till the ensuing spring, the head and crest remaining of a dull brick-red in the interval.

Breeding-Notes.—It nests from the end of October to the middle of November, retiring for that purpose to the woods.

The nest is generally placed at the end of a branch of a tala tree, about eight or ten feet from the ground. It is a large shallow construction, built of wild-vine tendrils or twigs and wood, and lined with horse-hair. Sometimes the last material greatly predominates; and I have then seen the nest so frail that one could see through the bottom of it. The uneasy approaches of the birds frequently betray its situation, should an intruder appear in the vicinity.

Three is the largest and most usual number of eggs laid. The clutches of eggs vary greatly in appearance, and still more so in size. The commonest type measures about $\frac{34}{40} \times \frac{24}{40}$, and in colour is of a brownish ground, thickly marked with brown spots. One clutch of three, in my possession, fitly illustrates the above-noted variation. The eggs average $1\frac{4}{40} \times \frac{25}{40}$, while the ground-colour, of which there is a good deal seen, has a greenish tinge; the spots also incline to the blunt end; and in addition there is a dark ring there, more or less pronounced.

24. TANAGRA STRIATA (Bird of seven colours).

The "Pajaro de siete colores," as the natives call it, is common enough; and yet, though it remains with us all the year, I have never obtained a nest, nor even been able to ascertain if it breeds in this district at all.

It is generally found in small flocks of four or five, males and females, about the woods and gardens, and in the latter locality does considerable damage among such fruits as figs and grapes. In the winter time they are always to be found in the "Paraiso" (or Paradise) trees in the garden, the berries of which do not ripen till then.

A bold, marauding, songless bird it is; and even its blue, orange, and yellow plumage is not very admirable, in my opinion at least.

25. LICHENOPS PERSPICILLATA.

A common bird in the swamps and "pajanales" (grass-coverts). It is not unusual to see it about the homesteading, corrales, garden, and even the outskirts of a wood.

Except in the breeding-season, it is always solitary in its habits; and I have been struck with the preponderance of the black over the rufous birds. I am quite of Mr. Durnford's opinion though, that the black are males, and the rufous females; albeit my belief is founded, not on dissection, but on observations made at the breeding-season.

It is a most solemn, silent, ghostly-looking little sprite; and for a while, from having been very unlucky in my attempts to secure a specimen, I had almost formed a superstitious belief that it was proof against powder and shot. By no means shy, it will stand even being fired at once or twice.

The food consists of beetles, small flies, &c. &c. On one occasion, while watching a swarm of newly-winged ants, I was surprised by the appearance of one of these birds; and the Flycatcher-like way in which it rose from the ground, took a turn or two in the air, and snapped up the ants was something quite new to me.

Its flight has nothing worthy of observation further than that it is never a prolonged or sustained one.

Breeding-Notes.—I have only taken some four nests, and so, as regards the duration of the nesting-season, can only cite from 19th October to 30th November.

These were all situated in swamps, built into the reeds at about a foot from the water, and invariably constructed of the dry blades of a certain kind of water-grass, the finer blades of the same forming the lining. The result is a compact, comfortable little nest, rather neater than what might be imagined from the above description. A fifth nest I discovered in a most extraordinary situation—namely, on the top of one of the roof-tree beams, inside a large open shed, and about fifteen feet from the ground. The building was within a hundred yards of a swamp; and it was nothing unusual to see a *L. perspicillata* inside of it; but had it not been that the nest contained eggs (about which there can never be a doubt), I should have refused to acknowledge the possibility of its belonging to this bird.

None of the above-mentioned nests contained more than two eggs; but I fancy the full clutch must be larger. They average $\frac{33}{40} \times \frac{24}{40}$ or $\frac{25}{40}$. In colour they vary greatly, some having the ground-colour nearly white, while in others it is suffused with a warm pinkish glow. The markings consist of a few spots, streaks, and blotches of black and reddish brown, generally congregated at the blunt end.

26. PROGNE PURPUREA, Linn.

It would be supererogatory on my part to write at any length on this and the following species when the subject has been so ably treated by Mr. Hudson (P. Z. S. 1872, p. 605). Consequently I will confine myself to observing that it is abundant with us, coming in the first week in September, and leaving about the end of March.

There were two entirely black specimens which used to appear annually at the head station; but I have not seen them for the last year or two.

Breeding-Notes.—Immediately on their arrival they begin to examine their old nesting-sites; but the eggs do not seem to be laid till much later, and I have taken fresh ones towards the end of November.

These sites are crannies in the eaves or gables of any building, or various similar situations; but the nest is never so isolated from some contiguous beam or wall as to necessitate its being entirely built of mud, that material being only used to close up the open sides and leave but one entrance-hole. The mud is very coarsely mixed, sometimes with a good deal of grass in it. The lining consists merely of some dry grass.

One of their favourite localities is a beam underneath the eaves of our large wool-store, just at the doorway. It says much for their familiarity that the constant traffic does not deter them from building there.

The eggs are of a beautiful white, pear-shaped, and average $\frac{37}{40} \times \frac{24}{40}$. Six is the largest clutch I have taken.

27. PROGNE TAPERA.

This species is probably as abundant as the preceding; but, as a frequenter of the woods and from the nature of its nidification, it is more diffused, and consequently appears scarcer.

It is also about a month later in coming, appearing in the first week in October, though it leaves at the same time as *P. purpurea*, the end of March.

Breeding-Notes.—As it arrives after *P. purpurea*, it is proportionately later in breeding, while, from being parasitical on *Furnarius rufus*, the date of its nesting varies greatly. Eggs are most generally taken in December; but I once found a nestful of young birds (full-fledged, it is true) as late as the beginning of March.

It only breeds in the nests of the Red Oven-bird (*Furnarius rufus*), either taking possession after the original owners have hatched out and reared their brood, or forcibly ejecting the rightful occupants. Mr. Hudson has been more fortunate than I in witnessing the prolonged and determined warfare displayed on the latter occasions, an interesting account of which he has given in his paper. But he is mistaken in supposing that this peculiar habit of *P. tapera* is unique; for *Leptasthenura ægithaloides* (Kittl.), as will be seen further on, is also parasitical on *F. rufus*, though it is content to wait for a disoccupied tenement.

I would note that *P. tapera* only nests, so far as I have observed, in the nests of the Oven-bird which are built on trees, eschewing those situated on posts or houses. It would be rather too much to have to climb up a score of thorny tala trees, and examine as many Oven-birds' nests, on the mere chance of finding in one the eggs of the Swallow; but, fortunately for the oologist, the latter birds resent the approach of any intruder in the neighbourhood of their domain, and by their angry screams and swift dashes generally afford him the necessary clue. Or, as sometimes happens, a stray feather in the entrance intimates that the interior contains, not the despised eggs of the Oven-bird, but those of *P. tapera* or *L. ægithaloides*—prizes both.

P. tapera lines its lodgings with a pile of feathers formed into a nest. Grass, wool, and hair are sometimes added; but the feathers are the principal material, and the amount is usually sufficient to fill up the interior of the Oven-bird's nest.

The eggs, so far as I know, never exceed five in number, are pure white, and average $\frac{36}{40} \times \frac{25}{40}$.

28. Pitangus bellicosus.

Called by the natives "Bien-te-veo" ("Well, I see you"), from its cry resembling these words.

Doubtless as well known as it is common. In the woods, swamps, gardens, or about the head station it is equally at home. In the morning, just at daybreak, the noise made is absolutely deafening, each one shouting its cry and screeching energetically, varying the emphasis on the syllables in a rather amusing fashion. At sundown the same thing is noticeable, the chorus being as general as in the morning, and also lasting but the usual half hour. While uttering the cry the feathers on the top of the head are erected, so as to form a very handsome crest of black and yellow; and the head at the same time is frantically jerked about in a way that would dislocate the neck of any respectable bird. All day long it is on the war-path, chasing or being chased by its own kind, or persecuting all other birds, however much larger than itself. It is a most familiar and impertinent individual, and will alight within two yards of one, cocking its big black head to one side, and remarking, very audibly, that it sees you perfectly. On the whole, too, it is considered to be a bird of rather bad character, a feathered croquemitaine, a noisy, aggressive, obtrusive bully.

Decidedly omnivorous in its food, flesh, fish, grain, vegetables, and fruit all disappear with remarkable rapidity into that immense black beak. I have been amused at the way it manipulates a piece of meat, whacking it alternately on each side of it against the branch or rail on which it is sitting, preparatory to swallowing the morsel. It almost gives one both toothache and headache to merely look at the operation. The freshwater mollusk already mentioned as constituting the food of *Rostrhamus sociabilis* is also greatly affected by the Bien-te-veo; and one frequently finds old cow-bones close to the swamps, which, by the broken shells scattered round them, indicate the use to which they have been put.

The young are not difficult to rear; but as their note is any thing but musical, and a savage dig from the beak is rather unpleasant, the incentive to do so is not at all great.

Breeding-Notes.—There is no attempt made to conceal the big nest of *Pitangus bellicosus*; one might as well try to hide a hay-stack. It is built of dry grass, fibres or roots, wool, hair, and feathers (the wool, however, is the principal material)—in shape spherical, a little over a foot in diameter, and entered by a hole in the side. While the outside is very ragged and irregular, the interior is neatly felted with wool and hair. It is placed in a tree, often at no great height from the ground. Nests in swamps, too, are not uncommon, built into the reeds, and sometimes only a foot above the water.

The nest is begun as early as the 2nd of August, though I have never taken eggs before the 21st of September. The first brood (for I believe *P. bellicosus* has two in the season) has flown by the middle of November; and fresh eggs may be taken as late as the 22nd of December.

The clutch of eggs never exceeds five; but four is the more usual number. Ground-colour pale yellow, with red blotches and spots, chiefly at the blunt end. The average measurement is $1\frac{6}{40}\times\frac{33}{40}$, as taken from a large series.

29. MILVULUS TYRANNUS (Scissor-bird).

This species is not uncommon with us, arriving in the beginning of November, and leaving about the middle or end of February. At Baradero, in the north of the province, it arrives in October and leaves early in April. In consequence of its tardy arrival here, I have seen young birds as late as the beginning of February, some entirely without the long tail-feathers, while in others they were but partially developed.

The flight is undulatory, like that of a Wagtail, during which the two tail-feathers open and close like a pair of scissors. Sometimes it hovers for a moment or two with these feathers expanded, so that they resemble a section of a large oval; or it will alight upon a tree or fence in this attitude, and twitter like a Swallow (the only note which it possesses, I think). The crest is but rarely elevated, and then shows black and yellow, similar to that of *Pitangus bellicosus*.

Milvulus tyrannus is not so belligerent as its name would lead one to expect, though it does make a show of tyrannizing over other small birds—chasing them a short distance, but never actually coming to blows.

It is insectivorous of course; and in the rincones, where mosquitos abound, I have taken three nests within a quarter of a mile, on the isolated and stunted tala trees, which are sparsely sprinkled over that peculiar district.

Breeding-Notes.—It breeds in December and the first week of January. The nest is placed, without much attempt at concealment, on a tala tree, from eight to ten feet above the ground, measures about three inches across the interior, is rather shallow, and consists of thin stems of plants, wool, lichens, and thistle-down, pretty compactly quilted together. The lining is of fine roots and fibres, or sometimes wool alone.

The bird frequently sits close; and when disturbed the pair always remain in the vicinity of the nest.

The eggs never exceed three in number. The average measurement is $\frac{34}{40} \times \frac{25}{40}$. They are rather smaller copies of those of *P. bellicosus*, being of a pale yellow ground, with reddish spots, which, however, are more equally distributed over the egg. The shell is very fragile also.

30. Pyrocephalus rubineus.

Mr. Durnford quotes the native name of this species as "Chirinchi," while here it is known as the "Militario."

It also is common enough, being, like the last, a summer visitor, but arriving earlier, from the 21st of September to 7th of October, according to the state of the season. The old birds leave again in the beginning of February, while the young remain till the middle of April. Compare, as formerly, with Mr. Durnford's Baradero notes:—"Arriving in September and leaving in April. Old birds leave us at beginning of February, young remaining till middle of April." The young, on leaving the nest, resemble the female.

With, perhaps, the exception of *Paroaria cucullata, P. rubineus* is the most beautiful bird we possess. As I have come upon a male in the woods, perched on some low stump or branch at the edge of a glade, it has seemed to burn and glow in the bright sunlight like a live coal. It catches and arrests one's eyes instantaneously, though a hundred yards away.

The flight, as becomes one of its Flycatcher-like habits, is very rapid, but short; and it generally has some favourite perch, to which it returns after each excursion in pursuit of a fly or other insect. While uttering its "trilling song, a silvery bell-like sound," as Mr. Hudson fitly describes it, it rises like the Lark, though not so high; and also while descending the wings remain expanded, are held high above their usual level, and have a tremulous motion imparted to them. Another note which it has, particularly when the nest is threatened, is similar to the *pink, pink* of the Chaffinch on like occasions.

It is insectivorous of course; and I have found in the crop remains of various small beetles.

Breeding-Notes.—I have taken eggs from the 19th of October to the same date in December.

The nest is very like that of the Chaffinch, though never quite so compact or neat. It is built of lichens, which are held together with a few horsehairs, and lined with small soft feathers. There is some skill displayed in the concealment of it, though generally situated on some isolated tala tree at about ten feet from the ground, or on the outskirts of the wood.

The eggs never exceed four; but three is the more general number. They are rather pretty, having a yellowish ground, with brown and grey spots and blotches, generally forming a zone round the centre of the egg. The average measurement is $\frac{27}{40} \times \frac{20}{40}$.

31. ZONOTRICHIA PILEATA (Sparrow).

As abundant and as impudent as its European congener, it is not, however, quite so gregarious in its habits.

I must confine myself merely to some remarks on its breeding-habits, as, from its being so common, I have always postponed and neglected any other notes, and consequently have now no data to work upon. One incident only remains upon my memory—namely, the attack of an immense brown moth (*Erebia odora*), some seven inches across the wings, upon one of these birds. It occurred in the daytime; so the moth may have mistaken the bird for one of its own species; but at any rate, there it was, buffeting the Sparrow vigorously with its wings, while the latter kept hopping back, evidently divided between fear of such a bold and big assailant and contempt of the puny blows of which it was the recipient. I went for the moth with a butterfly-net at last, and ended the contest.

Breeding-Notes.—*Z. pileata* has two broods in the season, the first dating from 24th September, and the second from 1st November to end of January.

The usual material for the nest is dry grass, with a lining of horsehair; and it is generally placed on the ground, among the grass or under a fallen branch or thistle-leaf. Other sites are in the eaves of outbuildings, interior of barns, haystacks, &c. &c. (The nest, I should state, is an open one.) If *Z. pileata* chooses a nesting-site in a shed or barn, no amount of traffic or pulling down the nest, will make it give up its building-operations. I remember, one shearing-season, a pair showing such remarkable persistence. Just before the siesta we were in the habit of throwing all the half-filled bags of wool &c. into a pile, in order that there might be no time lost in covering them up should a thunder-storm arise during that hour. Well, these birds thought this was an excellent place for a nest; and every day for over a week, on taking down the pile in the afternoon, I found that they had completed an entire nest, all but the lining, during the two hours of the siesta. Ultimately, however, they desisted, in evident disgust. Another site for a nest was the interior of a bullock-cart, in a fold of the canvas "toldo," the cart not being in use at the time.

Four is the maximum clutch of eggs, the usual number being three. They vary as much in size as in colour; and in a series like mine specimens occur which, but that they were identified in person, would never have been credited to *Z. pileata*. The usual type has a greenish ground, thickly spotted with reddish brown; and an average (of thirty-one specimens) gives $\frac{31}{40} \times \frac{23}{40}$ as the measurements.

32. SISOPYGIS ICTEROPHRYS.

Rather rare, there perhaps not being more than two pairs in the woods surrounding the head station. These remain with us all the year round; but, from their rarity and shyness, my notes relating to their habits are very incomplete; so I will merely give a short description of the nest and eggs in the meantime.

Breeding-Notes.—It breeds about the end of October and beginning of November, placing its nest among some twigs or shoots on the trunk of a tala tree, five or six feet from the ground. The nest is shallow, and stragglingly built of dry wild vine-tendrils, lined with fine grass.

The eggs, which I have never found to exceed three in number, are rather pretty, being of a warm creamy-white ground-colour, with a few bright red spots, principally at the blunt end. They average $\frac{31}{40} \times \frac{23}{40}$.

33. CHRYSOMITRIS MAGELLANICA.

Very abundant; the time when it is least so seems to be the autumn and earlier part of the winter. During the latter part of the summer, and also of the winter, it is gregarious. Its food consists of thistle- and lucern-seed &c. Caged birds get the usual Canary diet, on which they seem to thrive very well. The song is generally considered sweet, and, I think, much resembles that of the tame Canary. As it is also an easily-tamed and hardy cage-bird, large numbers are trapped and sent into town, where they find a ready sale.

Breeding-Notes.—I have taken eggs from 25th September to middle or end of December, though October is the favourite month. The nest is generally placed in some thick bush or tree, at no great height from the ground, and is rather neatly built of small twigs, dry grass, wool, moss, and lichens, lined either with fine grass and wool or with feathers.

The eggs never exceed four in number, while three is the more general clutch. In colour they are a clear bluish white; but a not unusual variety has small red spots on the white ground. I do not recollect ever finding a mixed clutch (that is, a nest which contained both varieties of eggs). A large series gives $\frac{27}{40} \times \frac{19}{40}$ as the average measurements.

34. LEPTASTHENURA ÆGITHALOIDES.

Not uncommon, remaining with us all the year, and breeding. It is generally to be found in pairs, but in no larger numbers.

It is rather a pretty, quaint little bird, and always reminds me of our Tits at home, incessantly moving about the trees, hanging from a twig head downwards, as it strips off all the *Aphides* and other small insects, with erected crest and twittering note. Should the nest be threatened, this note becomes louder and angrier, and the bird, at no times shy, approaches one very closely.

Breeding-Notes.—Leptasthenura ægithaloides, like *Progne* *tapera*, is parasitical on the Red Oven-bird (*Furnarius rufus*); that is to say, it takes possession of either a recently disoccupied or old nest of the latter, and entirely fills up the interior with wool, dry grass, and (principally) feathers: the last-named might be counted by thousands in some cases, I think. It is strange that two birds should be dependent on *F. rufus* for nests; but this is only on a par with such anomalies as that of *Pseudoleistes virescens*, which either makes a nest for itself or deposits its eggs in those of other birds, or that of a nest of *Zonotrichia pileata* containing thirteen eggs, of three different species, not one of which is a Sparrow's.

L. ægithaloides breeds from the middle of October to the end of November, laying three or four roundish eggs, of a warm or creamy-white colour, and averaging $\frac{27}{40} \times \frac{21}{40}$.

35. Troglodytes furvus.

Very common, and frequents both the houses and woods. It is a quiet, familiar, prying little individual, and has hardly any fear of man. One used to haunt our dwelling-house, hopping in and out of all the rooms, and inspecting the ceilings and corners for its insect prey. On one occasion, while I was lying on my bed reading, during the siesta time, it alighted first on the top of the bedstead, then on my brow, and from there hopped onto the book I was reading, retaining that position sufficiently long to take a good look at me before flying away again! The same bird built its nest on a shelf, behind some phials, in one of the other rooms, but from some caprice left it when finished.

I would beg to note, by the way, that *T. furvus carries its tail straight*, and not after the ridiculous fashion of the British species.

It has rather a pretty little song, two or three notes of which it often indulges in during the night. Its more general utterance is an angry harsh chatter, like a rolling string of r's.

Breeding-Notes.—In the woods *T. furvus* constructs its nest in any hole in a tree, filling up the cavity with a lot of the smallest and most thorny of tala twigs, then a framework of horsehair, and lining it with soft small feathers, often of very pretty colours. It is open, not domed. When the space is limited the twigs are dispensed with, and only hair and feathers used. One of the latter description, which I remember taking, was just within a foot of the larger cavity in the same tree in which an opossum had taken up its abode.

About the houses the sites selected are rather curious too —in the roof of a barn or outhouse, the nozzle of a pump, mouth of a waterpipe, rose of a watering-can (which had been suspended to a tree in the garden), the sleeve of an old coat left by a workman in the killing-shed, &c. &c. A last instance is a nest in a small canvas bag hanging in a veranda; the bag was only a foot square, and, from the stiffness of the material, required the mouth to be actually wedged open by the body of the bird to permit ingress and egress.

It breeds from about the 20th of October to the middle of January, eggs having been taken on the latter date. I have noticed, however, that the nest takes nearly three weeks to construct.

Like Mr. Durnford, I formerly imagined that five was the number of eggs laid, but have lately taken a clutch of seven, the only one out of some scores of nests examined. Mr. Durnford found even so many as eight in a nest ultimately. They are of a pink ground-colour, thickly spotted with a darker shade, and average $\frac{28}{40} \times \frac{20}{40}$.

36. CYANOTIS AZARÆ.

Very common in all our swamps. It is so regardless of man that I have had the utmost difficulty in frightening a specimen to such a distance as would ensure its not being blown to pieces, even with a charge of No. 10 shot from a gun-stick.

Breeding-Notes.—I have taken eggs from 20th November to 3rd January, but believe it breeds earlier than the first-named date. The nest is built into two or three reeds, about eighteen inches from the surface of the water. It is rather deep, the walls very thin but astonishingly strong, being composed of the dry papery outside of a species of water-rush, gummed together with the glutinous contents of certain raspberry-like ova (as I take them to be)*, and lined with the dry thread or fibre from the interior of the same plant. The whole structure is about four inches in length (outside measurement), and one and a half in diameter, the sides being barely one quarter of an inch thick, and the bottom half an inch. There is not a single straggling fragment of material about it; it is very light and delicate; and yet it may be tossed about any way, or even packed among empty Swan-eggs without receiving damage—the neatest nest we have, in short. It is rather difficult to find in the swamps, being so small, and placed low down, while the rider is raised just as high again in the saddle; besides which, it harmonizes admirably in colour with the rushes and reeds amongst which it is situated.

The general clutch of eggs is two; at least I never took more, and have found even that number considerably incubated. They are of a pale cream-colour, which darkens toward the blunt end, and occasionally merges into a faint brownish ring there. The average measurement is about $\frac{25}{40} \times \frac{18}{40}$.

37. CYGNUS NIGRICOLLIS. "Cisne."

As there are a great many swamps and fens here, it is but natural that all the waterfowl should be represented in extraordinary numbers; and accordingly even Swans are nearly as abundant with us as Ducks are in other districts. I have counted about two hundred on one small lagoon in a swamp; and the latter is but one in a whole network of swamps and watercourses. Another great fen, bordering our land, is known as the Cañada de Cisneros, or Swamp of the Swanneries, an eminently suggestive name for the oologist, one which its character well bears out. About the beginning of the century, the first Christians (so-called in contradistinction to the Indians) who reached this district were Gauchos, who, in pursuit of Swans for the sake of their skins, made occasional excursions from inside the frontiers. Their weapon was the "boleadores," or balls, of the same nature as those used for catching cattle and horses, and which are now sufficiently well known in England for me to dispense with a description of them. These "Swan-balls" differed only in being made of wood, so that they should float on the water if the Gaucho missed his aim. The Swans were tamer and easier to approach then; and the rider took care always to come down the wind, getting within forty or fifty yards before they took the alarm. Then a desperate push, if the water was not too deep, would gain another ten yards, as the Swans are taken at the disadvantage of being compelled to rise *down* the wind. The balls are whirled, thrown, and, twisting round the wings and neck of the bird selected, render it quite helpless. I once myself nearly ran down a *C. coscoroba,* in water some three feet deep. Unfortunately I had nothing but a riding-whip; and as I swerved slightly in order to use it, the Swan doubled and went back up the wind, leaving me drenched with the water thrown up by my horse's plunges and bounds during the chase.

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* This is rather a peculiar object, consisting of a number of eggs, each about the sixteenth of an inch in diameter, gummed together into a mass and attached to some rush or plant in the swamps above the water. The shells are raspberry-coloured, and brittle, like glass; the contents are a transparent colourless mucilage. They are very common. The only change in their appearance is that the eggs sometimes fade in colour.

Nowadays it is difficult to get within gunshot-range of *C. nigricollis* without regular stalking. I have stood out from the cover and fired again and again at the birds without raising them; but they always preserved an exasperatingly accurate distance of some twenty yards over the hundred, allowing the lead to patter on the water that distance short every time. The best method is to take one's stand on some island among the swamps, about sundown, when the Swans are passing from one lagoon to another. This they generally do, either in pairs or singly, flying low, and making almost no deviation on perceiving the sportsman. Accordingly the sensation is something like firing at the side of a house; it is hardly possible to miss.

When flying, this Swan constantly utters a whistling note, which, in conjunction with the noise of the wings, is always sufficient to notify its approach. This whistle is its only note or call, and also serves to express warning and alarm.

Breeding-Notes.—It nests very early; for I have taken a nest on the 24th of July, the five eggs of which were much incubated. July and September are the favourite months; but eggs may be taken as late as the middle of November. The position chosen is always in one of the largest and deepest swamps, the nest being placed among the thickest rushes, at some distance from one of the lagoons, but connected with it by a lane of clear water; for the birds always leave the nest by swimming. It is built from the bottom of the swamp, sometimes through four or five feet of water, above the surface of which it rises a foot or a foot and a half. The diameter at the top is about two feet, the depression for the eggs slight, with a few feathers from the Swan scattered about it, but not sufficient to be called a lining. Dry rushes, of the common kind known as "hunco," form the building-material. It is a pretty strong, compact structure, but not sufficiently so to support a light man's weight, as I found to my cost on springing from my horse onto the first nest I found; for it immediately subsided, and left me waist-deep in the water, with a young horse to mount proverbially known for its quickness, and barebacked into the bargain. Never mind how I managed to regain my seat ultimately; but I carried off the eggs in triumph.

Nothing would be easier than to expatiate on a certain day in the Cisneros swamp, such as I had two years ago, with a tame old horse under me, firm ground underneath, the water unusually clear and free from weeds, and so deep that only the seat of the saddle was above its surface. I spent three hours in the heart of this swamp, on a calm sunny day, floating noislessly along the narrow open channels among the bright green rushes—now seeing a Swan swim slowly away from its great nest, where lay the three or five large handsome eggs—again stopping to poke up the suspended nest of that curious aquatic opossum (*Didelphys crassicaudata*, Desmarest), and watch the truculent little villain spring out and also swim or dive away puffing viciously—then turning my horse to where the head and neck of a watchful Maguari Stork (*Ciconia maguari*), towering above the hunco, betrayed that it was standing up on its nest, while the many-coloured little *Cyanotis azaræ* crept up and down the green rushes in close proximity to me, and a hundred different sounds and cries spoke of nearly as many different species of waterfowl present, and kept me busy making mental memoranda. But the outline of the sketch is quite sufficient, without all the fascinating accessories.

I have seen the female conveying the young on its back, and on one such occasion managed to press the bird so close that I captured one of the young in down. Though only a few days old, it gave me a great deal of trouble to catch it, diving always just as the horse's nose almost touched it; and, but that the water was so clear that I could see and follow its motions and so tire it out, it would have proved too quick for me. It had no sign of the black head and neck, of course, being in down; the colour was pure white, with a black beak.

The general clutch of eggs is either three or five. I only once ever met with a nest containing six. They are of a smooth glossy cream-colour; and the average measurement of a large series is $3\frac{35}{40} \times 2\frac{22}{40}$, varying from $4\frac{9}{40} \times 2\frac{24}{40}$ to $3\frac{28}{40} \times 2\frac{18}{40}$.

38. Cygnus coscoroba. Native name "Ganso," or Goose.

Common, but not nearly in such large numbers as the last, though in the month of August I have seen flocks of from eleven to seventeen. As a rule it is to be found in pairs. The occurrence of flocks in the above-mentioned month seems strange; for it is generally breeding then, and, though affecting certain favourite localities, does not nest in colonies. It does not associate with *C. nigricollis*, though, of course, it is often found in the same lagoons. Even more wary than the latter, it is also more shy, and usually takes flight when alarmed. The note is a loud trumpet-call, uttered both when flying and on the water, if its suspicions should be aroused. In the latter case the male and female answer each other alternately with it, swimming about uneasily the while. Of the two species, *C. nigricollis* and *C. coscoroba,* the one under note is much the handsomer. It bears itself more gracefully when swimming, the neck curved and the wings raised, after the true Swan model, while the brilliant carmine beak and caruncles contrast admirably with the plumage (entirely white except the black-tipped wings). Iris mottled blood-colour, pupil black.

Breeding-Notes.—My information on the subject is not so full as might be desired, from always having postponed beating up the favourite nesting-locality of *C. coscoroba,* where the larger swamps merge into the brackish lagoons and tidal creeks of the rincones. It also breeds further inland, in similar localities to those of *C. nigricollis*; and I have seen or been told of nests in such large fens as those of the Cisneros, the Mangrulla, and the Arroyo Grande, all in the neighbourhood; but these are the exceptional cases, I believe. In these latter the situation, materials, &c. of the nest are identical with those of *C. nigricollis.* The neighbourhood of the Laguna de Milan is our great locality, however; and I have known one of our shepherds there gather as many as thirty or forty fresh eggs in a day, paddling about the isolated and otherwise inaccessible islands and low grounds in an old sheep-trough. The description and situation of a nest I took on the marshy shore of the lagoon, as I passed in a boat one day, applies, this man tells me, to nearly all. It was placed about a hundred yards from the water, on marshy ground, separated from the mainland, however, by a creek not to be passed on horseback. There was no vegetation to conceal it, the birds evidently relying upon the difficulty of access for security. Built of mud and rushes, about a foot and a half high, with a considerable depression for the eggs, the latter lined with dry grass and rushes. Both birds remained close to the nest till I had landed and approached within a few yards. My informant also stated that as many as eight or nine eggs are laid, which, however, I consider doubtful. I once saw a nest with five—a clutch the remembrance of which still haunts my memory; for I was in too great a hurry to stop and lift it at the time.

As early as July 10th I have seen a nest in course of construction, while the preceding nest was observed on the 28th November; but, as already stated, August is the general breeding-month. The young are said to suffer a good deal from the attacks of the Carancho (*Polyborus tharus*), probably from the fact that *C. coscoroba* is more frequently seen on land than *C. nigricollis*, and accordingly the young flappers are liable to be pounced upon before they can regain the water.

The eggs are smooth, but neither so glossy nor so cream-coloured as those of *C. nigricollis*; besides which they are decidedly smaller, the few specimens in my collection averaging $3\frac{16}{40} \times 2\frac{15}{40}$, and of a proportionately rounder shape.

[To be continued.]

II.—*Field-Notes on the Birds of St. Vincent, West Indies.*

By C. E. Lister, B.A., Caius Coll. Camb.

As the physical geography of some of the West-Indian Islands has been considerably modified since the advent of Europeans, chiefly by the clearing away of the virgin forests in order to plant sugar-canes, and as in some instances these changes have led to the extinction of several forest-loving species, I will preface my notes on the birds of St. Vincent by a short description of its physical geography.

St. Vincent, like its neighbour St. Lucia, is of volcanic origin; a lofty ridge or backbone, commencing with the Souffrière on the north, runs due south across the whole island. This ridge has many sharp and pointed peaks, all, however, covered to their very summits with virgin forests. The Souffrière is said to be 3000 feet high; but it is probably not the highest point of this ridge. Numerous spurs descend on either side from this central chain; and on the western or leeward side they are very steep and precipitous in some places; so that the "high woods" or virgin forests here approach the sea-coast much nearer than they do on the eastern or windward side, where, owing to the less precipitous nature of the ground, they have been cleared back to about three or four miles from the coast. The island, which is about twenty-five miles long by ten broad, is watered by numerous clear rivers, and, owing to the absence of swamps, is remarkably healthy.

I resided in St. Vincent during the months of February, March, April, July, August, September, October, and November. During my stay I collected eighty-five skins, which are now in the Cambridge Museum. Professor Newton and Mr. Salvin have kindly supplied me with the names of the species contained in the collection*.

1. TURDUS NIGRIROSTRIS, Lawr. *l. c.* p. 187.

The commonest of the three species of this family that I obtained. Found chiefly in the high woods, but descends to the clearings when the fig-trees bear fruit.

2. CINCLOCERTHIA RUFICAUDA (Gould); Lawr. *l. c.* p. 187†.

Not uncommon in the high woods. I never saw one on cleared land.

3. MARGAROPS MONTANUS (Vieill.); Lawr. *l. c.* p. 187.

Does not show itself so much as the preceding species, but may be common. Never met with it out of the high woods.

4. MYIADESTES SIBILANS, Lawr. *l. c.* p. 188.

Local name "Souffrière-bird."

I met with this interesting bird on the Souffrière, and in every part of the high woods that I explored. Its song, which causes even those who care little for bird-music to pause and listen, appears to be similar to that of a closely allied species so well described by Mr. Gosse in his account of the birds of Jamaica. During the month of August I noticed that the birds did not sing their full song, but after giving a few notes would stop and give utterance to a harsh note which reminded me of the discordant one which occurs in the song of the Greenfinch (*Ligurinus chloris*).

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* [We have added to the names given by Mr. Lister references to Mr. Lawrence's paper on the birds of St. Vincent, lately published in the 'Proceedings of the United-States National Museum,' 1878, p. 185, and a few other notes where necessary. It will be observed that Mr. Lister has added three species to the list of St.-Vincent birds—namely *Cypseloides niger*, *Fulica americana*, and *Tringoides macularius*.—EDD.]

† [See below, p. 72.—EDD.]

5. Catharopeza bishopi*.

Leucopeza bishopi, Lawr. *l. c.* p. 189.

This little bird is entirely confined to the high woods. In the stomach of one I found a small newt. This species may often be observed searching about amongst the stones and decayed logs that strew the course of the mountain-streams. The iris is hazel.

6. Thryothorus musicus, Lawr. *l. c.* p. 189.

I met with this lively little bird in every part of the island that I visited. Its song is sweet; and some of its notes resemble the rich notes of the Blackcap (*Sylvia atricapilla*). It is a bold, familiar bird, and frequently builds its nest in the verandas of the houses.

7. Certhiola atrata, Lawr. *l. c.* p. 190.

Local name "Sugar-bird."

Found all over the island. These birds often fall into the sugar-coppers. Nest domed, with entrance at side.

8. Vireosylvia calidris, var. dominicana, Lawr. *l. c.* p. 189.

Not found in the high woods, but elsewhere pretty common.

9. Progne dominicensis (Gm.); Lawr. *l. c.* p. 190.

This bird I have observed all along the Windward coast. It is said to breed in the cliffs. I once saw one of these birds hawking over a pasture after the manner of our Kestrel (*Falco tinnunculus,* Linn.).

10. Loxigilla noctis (Linn.); Lawr. *l. c.* p. 191.

Local name, "Sparrow."

Found all over the island. Frequents the arrowroot-drying-houses in company with *Phonipara bicolor* for the purpose of feeding on the arrowroot.

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* This bird cannot be referred to the same genus as *Leucopeza semperi,* of St. Lucia, but belongs to a distinct form of Mniotiltidæ, which Sclater proposes to call *Catharopeza.* See below, p. 73.

11. Phonipara bicolor (Linn.) ; Lawr. *l. c.* p. 191.

Local name, "Grass-bird."

Found everywhere, except in the high woods.

12. Tyrannus rostratus, Sclater ; Lawr. *l. c.* p. 191.

Local name, "Loggerhead Piperee."

Not found in the high woods, but elsewhere pretty common. In the stomach of one I found the seed of a palm ; their food, however, usually consists of insects.

13. Myiarchus oberi, Lawr. *l. c.* p. 191.

Local name, Piperee."

The distribution of this bird is similar to that of *Tyrannus rostratus*; but it is perhaps not met with in such great numbers.

14. Elainea martinica (Linn.) ; Lawr. *l. c.* p. 191.

Local name, "Corn-bird."

Distribution similar to that of the other species of this family. Though this bird is termed "The Corn-bird," I never could detect it feeding on grain.

15. Coccyzus minor (Gm.) ; Lawr. *l. c.* p. 193.

Local name, "Cuckoo Manioc."

I have often heard the note of this bird when entering the high woods (and on one occasion shot one to make sure that it was the same species found in the cleared districts), but have never seen or heard it in the interior. Its food consists largely of the different kinds of *Mantis*.

16. Crotophaga ani, Linn. ; Lawr. *l. c.* p. 193.

Local names, "Chapman's bird," or "Old Witch."

Found throughout the cleared lands, chiefly haunting pastures, never in the high woods. Said to have been introduced by a Mr. Chapman some thirty years ago.

17. Cypseloides niger (Gm.).

Local name, "Day-bat."

May be seen flying over the pastures in great numbers after rain.

18. Chætura dominicana, Lawr.; Ann. N.Y. Ac. Sc. i. p. 255.

This is perhaps the commonest of two species of Swifts, and is found all over the island.

19. Eulampis jugularis (Linn.); Lawr. *l. c.* p. 192.

Local name, "Doctor bird."

Confined chiefly to the high woods, though when certain trees are in flower, a few may be found on cleared land; it never, however, frequents the sea-cliffs.

20. Eulampis holosericeus (Linn.); Lawr. *l. c.* p. 192.

Local name, "Doctor bird."

Found everywhere in the island, except in the high woods, but not in great numbers. I once observed one of these birds hunting for insects after the manner of the Spotted Flycatcher (*Muscicapa grisola,* Linn.).

21. Orthorhynchus ornatus, Gould; Lawr. *l. c.* p. 192.

Local name, "Doctor bird."

Found throughout the island. By far the commonest of the family. Though unable to find the nest of the two preceding species, I could always procure the beautiful little structure formed by this tiny bird. I found nests of this species in March, April, and September.

22. Chrysotis guildingi (Vig.); Lawr. *l. c.* p. 193.

An inhabitant of the high woods. It appears to breed during the months of April and May, though no one has yet been able to procure the young. The individuals that are occasionally sent to Europe are birds that have been winged. During the latter part of August and the beginning of September I shot several examples that were moulting.

23. Columba corensis (Gm.); Lawr. *l. c.* p. 196.

Local name, "Ramier."

This bird is almost entirely confined to the high woods, though in the month of September when certain berries are ripe they may be found in the clearings adjoining the woods. They are strictly arboreal, never descending to the ground.

24. GEOTRYGON MONTANA (Linn.); Lawr. *l. c.* p. 196.

Local name "Padre."

This species is confined to the high woods. It feeds on the seeds &c. which fall from the trees. It is terrestrial in its habits, only perching occasionally on low shrubs, never on the lofty ones. It frequently places its nest in a tree fern.

25. ZENAIDA MARTINICANA, Bp.; Lawr. *l. c.* p. 196.

Local name, "Bequia Dove."

A few of these birds appear to come over from the islands of Bequia, Balliceaux, &c. in the month of March, but remain a very short time. They feed, when in St. Vincent, on the pigeon-peas.

26. CHAMÆPELIA PASSERINA (Linn.); Lawr. *l. c.* p. 196.

Local name, "Ground-Dove."

Found chiefly near the sea-coast, never in the high woods. The negro boys catch great numbers in traps.

27. URUBITINGA ANTHRACINA (Nitzsch); Lawr. *l. c.* p. 194*.

Local name, "Black Hawk."

This fine bird is met with chiefly in the high woods, but occasionally pays a visit to some quiet stream in the cultivated districts. Its food appears to be crayfish and fresh-water crabs. I procured two specimens, viz. an adult female and a young male. It may be observed soaring at a great height, sometimes in company with two or three Chicken-Hawks (*Buteo pennsylvannicus*).

28. BUTEO PENNSYLVANNICUS (Wils.); Lawr. *l. c.* p. 194.

Local name, "Chicken-Hawk."

This species is found all over the island, and is very common. It often builds its nest in a bread-fruit tree, and is very bold in defence of its young. Though the name by which this bird is known throughout the island led me to suppose that it was an enemy to chickens, I never observed it molesting the poultry. In the stomachs of all the specimens I examined I found the remains of lizards and snakes. Unlike the Black Hawk, it is very tame and permits a near approach.

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* [In 1874, the Zoological Society obtained from Dominica a young example of this species, which died in 1878 after putting on its adult plumage. See 'List of Animals in the Gardens of the Zoological Society of London' (1879), p. 314. The specimen is now in the Norwich Museum. —P. L. S.]

29. STRIX FLAMMEA, Linn.

Strix flammea, var. *nigrescens*, Lawr. *l. c.* 194.

Local name, "Gumby bird."

This, the only Owl in the island, is found everywhere, except perhaps in the high woods. It often takes up its abode in the boiling-houses. In the stomach of one that I shot I found the remains of a lizard. Several persons informed me that the bird devoured the berries of the Galba tree; and I was shown a heap of these berries which were supposed to have been partially eaten by an Owl. The negroes have a superstitious fear of this bird.

30. BUTORIDES VIRESCENS (Linn.); Lawr. *l. c.* p. 196.

Local name, "Gaulin."

Found near all rivers and streams, but very rarely met with in the high woods.

31. FULICA AMERICANA, Gm.*

I think this bird is only an accidental visitor to the island. An individual of this species was captured alive in an exhausted condition after a severe gale in Brabon Bay by a Mr. Nevison, who kindly sent it to me.

32. TRINGOIDES MACULARIUS (Linn.)†.

Local name, "Yellow-legs."

Found chiefly along the sea-shore. A few solitary individuals are occasionally seen near rivers in the high woods.

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* [This species is not given by Mr. Lawrence, but is one likely to occur in the West Indies.—EDD.]

† [Also not contained in Mr. Lawrence's list, but a widely distributed species.—EDD.]

III.—*Ornithological Notes from Afghanistan.*—No. II. *On the Birds of the Hariab District.* By R. G. Wardlaw Ramsay, F.Z.S., Memb. B.O.U., Lieut. 67th Regiment.

An unexpected return to England has defeated the plan I had in view of periodically transmitting my notes and remarks on the ornithology of Afghanistan to the pages of 'The Ibis.'

I venture now, however, to present to its readers a list of the birds observed and obtained during my sojourn in that country.

The situation of the particular portion of Afghan territory to which my researches were restricted has already been briefly described (*vide* Ibis, 1879, pp. 444, 445).

The marches through the Kurrum valley to our destination were of too hurried a nature to admit of much attention being devoted to its ornithology; so I have, in general, refrained from referring to birds there observed, as specimens were not collected, and consequently identifications would, in many cases, be mere conjectures and therefore of little or no value.

The climate of the valley where our troops, under Major-General Sir F. Roberts, were encamped during the spring and summer of 1879 is very pleasant during the summer months, the heat at no time being very great. During the winter, however, the cold is intense, as is testified by our troops who took part in the early stage of the campaign. Until the end of April we had continual falls of snow, and the weather was bitterly cold. It is therefore not surprising that the number of species found in the valley in that month should be very small, and almost entirely composed of non-migratory birds, such as the Paridæ and the Emberizinæ, the Himalayan Creeper, and the Sittinæ. The country being almost entirely covered with pine-forests, except where cleared for cultivation, is an additional reason for the poverty of species in the valley.

On reference to the Survey map of the country, it will be seen that the Kurrum valley proper is divided from that of Hariab by a long spur thrown out from Sita Rām, or Speen-gurh, as it is called by the Afghans, the highest point of the Safed-Koh range. This spur, over which runs the Peiwar Kotul, at first takes a southerly direction, but eventually turns away to the west, and appears to lose itself near the junction of the Kurrum and Hariab rivers, but not before it again approaches another spur of the Safed-Koh, which also turns to the southward, the general direction of the main range being nearly east and west.

It will thus be seen that the small part of the country known as the Hariab valley is enclosed in a kind of basin in the hills at an average elevation of from 7000 to 8000 feet above the sea-level. The Peiwar spur presents a considerable barrier to the advance of many species of birds; that is to say, many birds, such as *Muscipeta paradisi, Oriolus kundoo, Acridotheres tristis, Corvus corax, Corvus splendens, Ceryle rudis, Ortygornis ponticeriana,* &c., which occur up to the very foot of the Peiwar spur on the east, are, as far as my experience goes, unknown in the Hariab valley, which is approximately about 1500 to 2000 feet higher.

Another instance may be quoted in the King Crow (*Buchanga atra*), which is very abundant near the head of the Kurrum valley, but which is of rare occurrence in the higher valley. There is no doubt, therefore, that the climate of Hariab, albeit its elevation is not very much above that of the Kurrum valley, keeps out a considerable number of species, and consequently impoverishes the list of its birds.

The total number of species observed between the 12th April and the 10th July was seventy-three, not including the species obtained or observed at Shalofzan (in the Kurrum valley) only, which amount to thirteen more, and those of whose occurrence I only know by report, viz. *Lophophorus impeyanus* and *Rhynchæa capensis*, making a grand total of eighty eight.

In this paper I have followed the numbering of Jerdon's 'Birds of India,' according to the revised list published by Mr. A. O. Hume ('Stray Feathers,' viii. pp. 73–122).

I hope, in course of time, to augment the present list, as

I have made arrangements for collections to be made for me if circumstances shall permit.

(7) GYPAETUS BARBATUS (Linn.).

The Lämmergeyer is very abundant, and, indeed, is the only Vulture which occurs in the Hariab district. *Neophron ginginianus* occurs in the Kurrum valley.

(8) FALCO PEREGRINUS, Tunst.

I once saw a Falcon which appeared to belong to this species.

(17) FALCO TINNUNCULUS, Linn.

Common. Breeding in May.

(24) ACCIPITER NISUS (Linn.).

Once observed.

(56) MILVUS GOVINDA, Sykes.

I refer the Afghan Kite provisionally to this species, not having obtained a specimen. It was next to useless to collect large birds, owing to the difficulty of getting even the smallest packages transported.

(45) BUTEO FEROX.

Accipiter ferox, S. G. Gmelin, Nov. Comm. Acad. Petrop. xv. p. 442, pl. x. (1770).

Buteo ferox, Sharpe, Cat. Birds, vol. i. p. 176, pl. viii.

Buteo nigricans, Severtzoff (vide Ibis, 1875, p. 103).

The only specimen I obtained was a nestling, still partly in down, brought to me by an Afghan in July at Byan Kheyl, in the Hariab valley.

Numerous different opinions having been urged as to the plumage of this Buzzard in the young and adult plumages respectively (*conf.* Sharpe, *loc. cit.*; Gurney, Ibis, 1876, p. 367; and Dresser, B. of E. pt. 38), I will subjoin a brief description of the specimen in question. It is in the melanistic plumage which occurs in specimens from the north-west, and which has been described by Severtzoff from Turkestan as *B. nigricans* (loc. cit.). Throughout of a blackish brown, deepest on the head, quill-feathers, abdomen, and lower tail-coverts; the feathers on the crown with a black streak down their centres. The tail-feathers are pale-shafted, and of the same dark brown colour above, but with four or five pale transverse bars on each of the feathers, which are also tipped pale and are pale grey beneath. Cere and legs yellow. Wing about 12 inches, tarsus 3.

A pair of these Buzzards had a nest on a ledge of a steep cliff near our camp. I failed to obtain the parent birds, but believe that the specimen above described belonged to this nest.

I am indebted to Mr. J. H. Gurney for identifying the specimen.

(66) SYRNIUM NIVICOLA, Hodgs.

Once or twice flushed, but no specimen obtained.

(82) HIRUNDO RUSTICA, Linn.

Observed in the Kurrum valley only.

(84) HIRUNDO FILIFERA, Steph.

The Wire-tailed Swallow probably occurs in the Hariab district, although I cannot recollect having seen it. I found both these last species in the Kurrum valley.

HIRUNDO RUFULA.

Hirundo rufula, Temm. Man. d'Orn. iii. p. 298.

The Afghan bird belongs to the western form. It agrees with specimens collected on Mount Tabor by Dr. Tristram, and in Greece (*Howard Saunders*).

All my specimens from Murree are referable to the closely allied *H. erythropygia*, Sykes. Mr. Dresser, in differentiating the latter species from *H. rufula* (B. of E. pt. 37), says, "the black on the crown joins that on the back, the red collar not extending round the neck." This statement would be correct in the case of the still more eastern form, *H. striolata*, Temm., from Flores, Formosa, China, and Karen-nee; but in a very large series of the Indian bird from different localities, in no instance (in which the neck-feathers are in good order) is the collar imperfect.

(91) COTILE RUPESTRIS (Scop.).

Hirundo rupestris, Scopoli, Ann. I. Hist. Nat. p. 167, no. 253 (1769).

The Crag-Martin was abundant in the valley in June, and apparently nesting in the cliffs near our camp. The only specimen preserved is very markedly paler in every way than a specimen from Jericho, but agrees with it in measurements. It is in colour more like *C. fuligula*, Hartlaub, from South Africa. It is not *Cotile obsoleta*, Cabanis.

(99) CYPSELUS APUS.

Cypselus apus, Linn. Syst. Nat. i. p. 344 (1766).

Cypselus pekinensis, Swinhoe, P. Z. S. 1870, p. 435.

The Common Swift was very abundant in our part of Afghanistan, more especially about the summits of the mountains. On Matungi (12,600 feet), an offshoot of the Safed-Koh, I found them in great numbers, darting and shrieking round the rocks at the summit.

(120) MEROPS PERSICUS, Pallas.

I never obtained this Bee-eater, but observed large parties in process of migration at the end of April and beginning of May (*vide* Ibis, 1879, p. 446).

(121) MEROPS APIASTER.

Merops apiaster, Linn. Syst. Nat. i. p. 182 (1766).

I first observed the European Bee-eater on the 5th June, after which it became quite common in the Hariab valley. On the 22nd of the same month I found it very common between Kurrum fort and the Peiwar Kotul, where neither trees nor shrubs are to be seen for miles. The birds were sitting on the ground and darting up at insects occasionally. In Dresser's 'Birds of Europe,' pt. lxiv., a note by Mr. W. Blanford shows that he has observed the same thing in Beluchistan. Up to the 10th July, when I left the Kurrum valley, these birds were not breeding; nor, indeed, did I see any place at all suitable for the purpose.

Surgeon-Major Aitchison, of the Indian Medical Department, the botanist to the Kurrum Expedition, informed me that in a village near the base of the Safed-Koh the villagers said that sometimes in the month of June, when the Bee-eaters arrive, they come down in great numbers to rob the bees from the hives, and that the people had to keep continually on the watch to drive them off. The natives also say that the Bee-eaters do not remain long; so that it is possible that they may go elsewhere to breed.

(123) CORACIAS INDICUS (Linn.).

I did not obtain specimens, but am nearly certain that the bird in the Hariab district is referable to this species, and not to *C. garrulus*. It was not common.

(136) CERYLE RUDIS (Linn.).

I have never seen a Kingfisher of any sort in any part of the Hariab valley, although streams are numerous and fish abound. This species, however, is common on the Kurrum river.

(154) PICUS HIMALAYENSIS.

Picus himalayensis, J. & S. Ill. Orn. pl. 116.

Afghan examples agree with Himalayan. This is the only Woodpecker that I found in the Hariab district, where it was very abundant and breeding. The young birds had flown by the beginning of June.

(199) CUCULUS CANORUS, Linn.

The European Cuckoo was exceedingly abundant in the Hariab valley, arriving about the beginning of May. I did not hear it myself before the 15th of that month.

(243) CERTHIA HIMALAYANA.

Certhia himalayana, Vigors, P. Z. S. 1831, p. 174.

The Barred-tailed Tree-creeper of the Safed-Koh appears to agree best with the above species; but its coloration is generally more grey and less rufous, and the tips of some of the primaries are white and not rufous. These distinctions, Mr. Dresser has, I think, satisfactorily shown (B. of E. pt. xxx.), will not hold good. Mr. Brooks (J. A. S. B. 1872, p. 74) describes his *Certhia hodgsoni* as differing from *C. familiaris*, Linn., in much the same details as my Afghan bird differs from *C. himalayana*, Vigors.

The Tree-creeper was common enough on the Peiwar range and on the adjoining slopes of the Safed-Koh, where it was evidently breeding in June.

(248 bis) SITTA CASHMIRIENSIS.

Sitta cashmiriensis, Brooks, P. A. S. B. 1871, p. 209; J. A. S. B. 1872, p. 75.

Sitta cinnamomeiventris of my first paper (Ibis, 1879, p. 447).

It is not without some doubts that I refer the Hariab Nuthatch to the above species. It agrees fairly well with the brief description given by Mr. Brooks (*loc. cit.*); but I have specimens from Murree (*Biddulph*) which agree still better with his description, and which, in turn, do not agree so well with my Afghan bird.

The description of my bird runs as follows:—"Upper surface bluish slate-colour, including the two centre tail-feathers, which have no white upon them. Breast bright rufescent, shading into deep chestnut-red on the belly and lower tail-coverts, which are without white edgings, and into white or whitish rufescent on the throat, cheeks, and ear-coverts. A black line, 1·75 inch long, runs from the base of the maxilla over the eye onto the upper back. Quills brown, faintly margined with bluish slate on the outer web, and becoming white on the inner web towards the base. Rectrices brown, the two outer ones having a broad white bar on the inner web and another higher up on the outer, the next two plain, but tipped with greyish white. The bill is very slender and slightly recurved. Bill from gape ·95 inches, tarsus ·7, wing 3·35, tail 2. Bill dark slate-colour; gonys albescent."

This Nuthatch is the common one of the southern slopes of the Safed-Koh, and was breeding in the Hariab district in May. By the middle of June all the young had flown.

(249) SITTA LEUCOPSIS.

Sitta leucopsis, Gould, P. Z. S. 1849, p. 113.

The White-cheeked Nuthatch is rather common on the Peiwar spur of the Safed-Koh. I observed it hanging about a nest-hole on the 21st May, but on returning to take the eggs some days later was unable to find the tree. I have not observed this Nuthatch below an elevation of 7000 feet, which is about the lowest limit of pine-growth in these parts. On the 21st June I shot a young bird just fledged near the Peiwar Kotul. The iris of this species is brown; maxilla black, as also the margin and point of the mandible, the remainder of which is whitish horny; legs brownish green.

(254) UPUPA EPOPS, Linn.

The Hoopoe was not very common. It was breeding in June.

(257). LANIUS ERYTHRONOTUS (Vigors).

Very common. I found a great many nests in May and June. The first (27th May) was situated in the centre of a dense thorny creeper, and contained six eggs, white, faintly washed with pale green, and spotted and blotched with purplish stone-colour and pale brown. The nest was composed of green grass, moss, cotton-wool, thistle-down, rags, cow's hair, mule's hair, shreds of juniper bark, &c. &c. Other nests were found in willows by the river-bank and in apricot-trees. In a large orchard at Shalofzan, in the Kurrum valley, I found three nests within a few yards of one another.

(260) LANIUS VITTATUS (Valenc.).

Once or twice observed.

(273) PERICROCOTUS BREVIROSTRIS, Vigors.

Common.

(278) BUCHANGA ATRA.

Muscicapa atra, Hermann, Obs. Zool. p. 208.

Buchanga longicaudata, A. Hay (laps. cal. *albicaudata*) apud Wardl.-Rams., Ibis, 1879, p. 447.

This King-Crow is extremely common to the very base of the Peiwar Kotul, but is apparently very scarce in the higher valley of Hariab. It was especially abundant in the orchards at Shalofzan, in the Kurrum valley, in June, where it was apparently breeding; but I did not find the nest.

(288) MUSCIPETA PARADISI.

Muscicapa paradisi, Linn. Syst. Nat. i. p. 107.

The Indian Paradise Flycatcher is not found, as far as I know, in the Hariab valley; but among the orchards at Shalofzan, in the Kurrum valley, it is especially abundant.

I found it there in June, evidently breeding. A male in the red-and-white dress had the testes much developed.

This is another of the many instances observed of birds being stopped by so small a barrier as the Peiwar range. It is not as if suitable places were wanting in the Hariab valley; for well-watered orchards are of frequent occurrence there.

(296) HEMICHELIDON SIBIRICA.

Muscicapa sibirica, Gmel. Syst. Nat. i. p. 935.

Hemichelidon fuliginosus, Hodgs.; Jerdon, B. Ind. i. p. 458.

Breeding in May and June. I have found this bird up to the limit of the pine-growth on the Safed-Koh.

(299 *bis*) BUTALIS GRISOLA.

Muscicapa grisola, Linn. Syst. Nat. i. p. 328 (1766).

Arrived in the Hariab valley about the middle of May, after which time it became very abundant, frequenting the valleys among the pine-forests, and also the apricot-orchards, which abound near all streams in this part of Afghanistan.

I found the nest on the 3rd June, high up on a hill-side, at about 8000 feet. It was situated in the lowest fork of an edible pine (*Pinus gerardiana*), about six feet from the ground. The nest was composed of shreds of the bark of the juniper-tree, without any lining, except a few feathers, and contained four eggs, quite fresh, pale green, profusely freckled with light brown, especially towards the thick end. The position of this nest was rather unusual; but another I found was in a crevice of a ragged juniper stump.

(307) CYORNIS RUFICAUDA.

Muscicapa ruficauda, Swains. Nat. Libr. x. (Flycatchers) p. 251.

The Rufous-tailed Flycatcher is one of the commonest birds in the Hariab valley, extending far up (I have shot it at nearly 11,000 feet) on the Safed-Koh. It is about the last bird that is found in any abundance where the pine-growth ceases. Common, and breeding, as it was in May, June, and July, I never had the luck to find its nest.

Iris reddish brown; bill pale horny brown, margined with yellow, interior yellow; legs slaty brown. Sexes alike.

(310) MUSCICAPULA SUPERCILIARIS.

Muscicapa superciliaris, Jerdon, Madr. Journ. xi. p. 16.

I came across one pair on the Peiwar Kotul at about 8000 feet, of which the male only was obtained. This specimen agrees with examples from Kotgurh, Murree, Simla, and the Sutlej valley in the Tweeddale collection.

(351) PETROCOSSYPHUS CYANUS (Linn.).

A few pairs remained throughout the summer, and doubtless were breeding; but I did not find the nest.

(353) OREŒCETES CINCHLORHYNCHUS.

Petrocincla cinclorhynchus, Vigors, P. Z. S. 1830, p. 172.

Arrived in the valley about the beginning of May, after which time it was abundant, and generally to be found near small rocky mountain-streams in the pine-forests. It was, I think, breeding in June.

(368) TURDUS VISCIVORUS, Linn.

Turdus hodgsoni, v. Homeyer, Rhea, ii. p. 150.

On the 22nd May I found a nest containing four young birds nearly fledged. The nest was situated in a small deodar, about four feet from the ground, and seemed in every respect like that of a Blackbird in England. I returned a few days after to the spot, but found the nest gone; it had been taken by a soldier, in whose possession I found it afterwards. He kept the young birds for about a fortnight, when they died. I, however, was able to determine the species for certain. The cry of the Missel-Thrush was only heard on one other occasion; so I fancy it is rare.

(470) ORIOLUS KUNDOO, Sykes.

Orioles were extremely rare in the Hariab valley at (least such was my experience), notwithstanding that they are so abundant on the other side of the Peiwar Kotul in the orchards of the Kurrum valley. At Shalofzan, in the Kurrum valley, in June, I found them in great numbers: some were breeding; but as I saw quite young birds, it is probable that the nesting-season was nearly over.

(483) PRATINCOLA MAURA.

Motacilla maura, Pall., Reise Russ. Reichs. ii. Anh., p. 708.

Pratincola maura (Pallas), Sharpe, Cat. Birds, iv. p. 188.

Pratincola indica, Blyth; Wardl.-Rams. Ibis, 1879, p. 446.

This Stonechat is certainly about the commonest of all birds in this part of Afghanistan. As other people have before remarked, these birds vary much in the same locality; and so do their eggs. Some females have the throat, belly, vent, and upper tail-coverts nearly white, whilst others have the throat and belly tinged with brown, and the breast and upper tail-coverts with ferruginous. Whether it is a constant fact or not, I am unable to say; but it is worth remarking that, in several cases in which I shot the female at the nest, the bird with the ferruginous upper tail-coverts and breast had pale blue eggs, only minutely freckled with nearly obsolete pale reddish-brown spots, and the other above-mentioned variety had its eggs densely marked with freckles of reddish brown, especially at the thicker end. The nests were always placed on the ground, and generally on the steep slopes of the hill-sides.

(490) SAXICOLA MORIO.

Saxicola morio, Ehr. Symb. Phys. "Egypt and Arabia."

All the specimens collected in Afghanistan are, I think, referable to this species, having the inner webs of the primaries of the same colour as the outer, and not white as in *S. leucomela,* Pall.

Taking the white inner webs of the primaries as the distinction, I find that in a large series in the Tweeddale collection one specimen only can be attributed to *Saxicola leucomela,* Pall., which was collected on the shores of the Dead Sea by Dr. Tristram, and that all the rest, without exception, chiefly from Central Asia, Lahore, and Umballah, are *S. morio.* In addition to the russet under tail-coverts of *S. leucomela,* I may point out that it may be also distinguished by the shafts of the primaries being white at the base, showing a white spot on the outside of the wing, just at the tips of the wing-coverts.

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* Since the above was in print I have examined the series of *S. leucomela* and *S. morio* in the collections of Messrs. Seebohm and Dresser, and find that this character is not constant, as many examples of *S. morio* have the shafts at the base of the primaries white.

The colouring of the head in *S. morio* and *S. leucomela* cannot be taken as a guide. I have specimens of *Saxicola morio*, shot in April and May (when they commenced to breed in the Hariab valley), with the head almost brown, white washed with brown, and pure white. The plumage of the body varies with that of the head ; for the bird with the white head has the upper surface and throat rich black, and, again, those with the heads brown or brownish have the back in a corresponding degree brown or black mottled with brown. These latter birds were adult, although they had not assumed the full black-and-white plumage; for they were breeding in May and June.

Two females shot on the 9th May I feel sure belong to this species, inasmuch as they were in company with males of *S. morio*.

The only one which I was able to preserve was of a uniform clear earthy brown on the head, wings, and back, the rump and upper tail-coverts being white as in the male. The tail is also as in the male, except that the black is replaced by brown. Beneath the throat black as in the male, but each feather margined with pale russet, giving it a mottled appearance. The breast and lower parts are buffy white, the former having a decided tinge of russet, somewhat in the form of a pectoral band.

The head, which only is visible, of the female in Mr. Gould's plate of *Dromolæa picata* (B. of Asia, pt. xvii.) is evidently taken from a female *S. morio*.

I may mention that day after day, whilst out road-making, I have watched pairs of these birds, and invariably there was one black and one brown bird.

The nest is very difficult to find; and I have sat sometimes for half an hour or more, hoping that the birds would give some indication of its whereabouts. The only nest secured contained but one egg, of a pale unspotted blue, otherwise like a large Stonechat's (*Pratincola maura*) egg. The nest was placed under a collection of small rocks piled up by the torrent in the then dried-up bed of a mountain-stream. A considerable number of huge stones had to be removed before the nest could be got at. Near Attock, in the Punjâb, on the march up, I obtained *S. morio* (?), *S. opistholeuca,* Strickland, *S. deserti,* Rüpp.; and in the Khyber Pass I saw *S. picata,* evidently breeding, at the end of March.

(497) Ruticilla rufiventris.

Œnanthe rufiventris, Vieill. Nouv. Dict. xxi. p. 431.

At 12,500 feet on the Safed Koh, on the 1st of July, I observed a pair of Redstarts hanging about an old tree-stump; I shot the male, and on searching the stump found the nest in a crevice; but, unfortunately, it contained no eggs. The nest had the appearance of having been used; so that it is possible that the young had flown.

The specimen shot is what I take to be a full-plumaged *Ruticilla rufiventris.* The crown of the head and the nape are of a dark ashy grey, the feathers on these parts presenting a strangely worn appearance, the shafts being quite denuded of web near the tips; the forehead, sides of head, throat, back, and upper part of breast being jet-black; the rump, upper and lower tail-coverts, tail, and remainder of lower surface being rufous-chestnut. The wing measured 3·2 inches.

This specimen does not differ from other Indian examples shot towards the end of the year, except in the intensity of the black and the slate-colour of the head being rather brighter.

It corresponds with the plate of *R. erythroprocta,* Gould (B. of Asia, pt. viii.), excepting that the black on the lower surface does not descend beyond the upper part of the breast.

Referring to the latter species, Mr. Hume remarks (Lahore to Yarkand, p. 209) that the amount of black varies in individuals and is of no specific value. That the extent of black varies much is amply shown by the series of *R. rufiventris* before me; but I do not possess a specimen in which the black descends so far as the abdomen, as is depicted in Mr. Gould's drawing of *R. erythroprocta.*

I never saw a true Redstart on the Safed Koh or in the Hariab valley but on this one occasion.

(504) ADELURA CÆRULEOCEPHALA.

Phœnicura cæruleocephala, Vigors, P. Z. S. 1830, p. 35.

Ruticilla lugens, Severtzoff, Stray Feathers, iii. p. 428 (autumn plumage).

This bird was tolerably common in the valley when we arrived in April. It breeds in May and June. On the 22nd of May I found a nest in a crevice in the face of a precipitous cliff in a deep mountain-gorge. It was composed of small twigs and dried grass, thickly lined with camel's hair. I shot the female as she left the nest, which contained five fresh eggs of a dull cream-colour, with a broad zone of the same colour, but darker, near the thicker end.

It is somewhat strange that Bonaparte, who in all probability never saw this bird alive, should have fallen into the error of classing it among the Flycatchers, to which, I should say, it has no structural affinity, albeit its habits are far more like those of a Flycatcher than of a Redstart.

A young bird, apparently about a month old, which I shot on the Peiwar range on the 21st of June is throughout of a pale greyish brown tinged with rufous, and each feather margined black; the primaries dark brown; a broad edging of white on the outer web of the secondaries, which become sullied with rufous towards their tips; tail dark brown.

(514) CYANECULA SUECICA.

Motacilla suecica, Linn. Syst. Nat. i. p. 336.

The Bluethroats were so common in April and the commencement of May that I thought they were going to breed in the valley; but they had all disappeared by the 14th May.

(515) ACROCEPHALUS BRUNNESCENS.

Acrobates brunnescens, Jerdon, Madr. Journ. x. p. 269.

One specimen only, shot on the 21st May, probably passing through. I never saw the species again.

Iris pale yellowish brown; maxilla dark brown, mandible albescent; legs slaty brown.

Length 7·5 inches.

(516) ACROCEPHALUS DUMETORUM, Blyth.

One specimen obtained out of a pair observed on the 13th May—probably migrating; for I never met with the species again.

Iris pale yellowish brown; maxilla dark, mandible pale; legs pale brownish, soles greenish white.

Length 5·75, wing 2·50 inches.

A. agricola (Jerdon), according to that author, appears to have been obtained in Afghanistan; but I did not meet with it (B. of I. ii. p. 156).

(554) PHYLLOSCOPUS* TRISTIS, Blyth.

Phylloscopus tristis, Blyth, Seebohm, Ibis, 1877, p. 97.

One female, obtained on the 26th May at Byan Kheyl.

(560) PHYLLOSCOPUS VIRIDANUS.

Phylloscopus viridanus, Blyth, J. A. S. B. xii. p. 967; Seebohm, Ibis, 1877, p. 73.

Phylloscopus plumbeitarsus, Swinhoe, Ibis, 1861, p. 330.

One example shot at Byan Kheyl on the 28th June.

Mr. Seebohm informs me that, in his matured opinion, *P. plumbeitarsus*, Swinhoe, is identical with Blyth's species.

(562) PHYLLOSCOPUS INDICUS (Jerdon).

Phylloscopus indicus, Jerdon, Seebohm, Ibis, 1877, p. 87.

Common. It was breeding throughout May and June; but the eggs were not obtained.

(566 *bis*) PHYLLOSCOPUS SUBVIRIDIS.

Reguloides subviridis, Brooks, P. A. S. B. 1872, p. 148; Seebohm, Ibis, 1877, p. 106.

Common in the Hariab valley. A female shot on the 20th May contained eggs ready for laying.

Iris dark brown; bill horn-colour, paler beneath; legs pale brown.

(582) SYLVIA AFFINIS, Blyth.

Arrived in Hariab about the beginning of May. It was very common and was breeding by the 27th May. All the nests found were shallow cups, composed entirely of dried grass, and situated in small bushes, frequently juniper, about 2½ feet from the ground. The eggs vary much both in size and colour—some being long ovals, nearly pure white, spotted with pale brown towards the larger end, and others of a much rounder form, and a pale greenish white, thickly spotted in a broad zone near the thicker end and smeared with very pale brown, or else spotted and smeared with olive-brown over the whole of the thicker end.

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* I am indebted to Mr. Seebohm for determining the specimens of this genus in my collection.

(592) MOTACILLA (CALOBATES) MELANOPE.

Motacilla melanope, Pall. Reis. Russ. Reichs, iii. p. 696.

This Wagtail was common throughout the summer, and commenced to breed in May.

On the 5th June I found a nest in the roots of a tree which was lying in the dry bed of the stream near our camp; it contained four young ones just hatched and one addled egg, which I secured with the old bird.

(591) MOTACILLA PERSONATA.

Motacilla personata, Gould, B. of Asia, pt. xiii.

The masked Wagtail (*Motacilla alba* of my first paper, Ibis, 1879, p. 448) was abundant and was breeding throughout May and June. On the 5th June I found a nest in an exactly similar position to that described above. It contained five young birds, which had been hatched a few days. On returning to the nest on the 28th of the same month the young had flown, and a second laying of three eggs was in the nest. In course of preserving the female which I shot I found in her a fourth egg, ready for laying. Another nest was placed in a recess under a large stone near the edge of the water.

At Shalofzan, in the Kurrum valley, in June I saw a pair of black-backed Wagtails, probably *M. luzoniensis.*

(597) ANTHUS TRIVIALIS.

Alauda trivialis, Linn. Syst. Nat. i. p. 288. no. 5 (1766, ex Brisson).

Only one pair seen in the Hariab district, the female of which was shot on the 5th May.

(604) AGRODROMA JERDONI.

Agrodroma jerdoni, Finsch, Trans. Z. S. vii. p. 197.

Corydalla griseorufescens, Hume, Ibis, 1870, p. 286.

Agrodroma sordida, Rüpp. apud Jerdon, B. of Ind. ii. p. 236.

The only specimen of *Agrodroma* which I preserved in Afghanistan agrees closely with others from Upper Scinde (*Blanford*), Kashmir (*Jerdon*), and one in the Tweeddale collection marked N.W. India. These four specimens have not the secondaries and wing-coverts margined with rufous, nor have they the lower surface deep fulvous, as depicted in Mr. Hume's plate (Lah. to Yark. pl. xxi.); but these parts are of a light fulvous or ochre-fulvous, as Dr. Finsch describes them (*loc. cit.*). They have the breast-striations barely indicated, and strongly resemble the Abyssinian specimens Nos. 1571 and 1794 (but *vide* Ibis, 1869, p. 437) referred to by Dr. Finsch (*loc. cit.*), and which are in my possession. These are true *A. sordida*, Rüpp.

All the other specimens I have in my collection from N.W. India generally agree with Mr. Hume's plate above referred to, but not with the Afghan bird. The only marked difference between my Afghan and Kashmir birds and true *A. sordida* from Abyssinia is that they possess the fulvous spot at the tip of the second tail-feather, as, indeed, do all specimens from N. India. Mr. Hume is, I think, mistaken in saying that *A. sordida*, Rüpp., has no striæ on the breast. Both the Abyssinian specimens I have referred to are striated, faintly it is true, but still more distinctly than many birds from N.W. India.

This large Pipit is common on the slopes of the Safed Koh. I found the nest on the 22nd June under a small bush at the foot of a rock. It was neatly let into the ground, and contained three eggs, which I regret not being able to describe, as my collection of eggs has not yet arrived from India.

(638) LOPHOPHANES MELANOLOPHUS.

Parus melanolophos, Vigors, P. Z. S. 1831, p. 23.

Agrees with other examples from the Himalayas (Simla, Darjeeling).

Iris red-brown; bill black; legs dark brown.

This is by far the commonest Tit in the pine-forests, and has all the habits of a true *Parus*. It was breeding in May and June; but I did not obtain its eggs. The only two nests found contained young birds.

(640) Lophophanes rufonuchalis, Blyth.

This species is by no means so abundant as the last, with which it often associates, but still may be called common. It was breeding in May. The *Lophophanes beavani* of my last paper (Ibis, 1879, pp. 445, 448) is this bird.

I have observed it up to 10,000 feet on the Safed-Koh.

Iris bright brown; bill black; legs slate-colour.

Mr. Hume has pointed out (Lah. to Yark. p. 229) an apparent error in Dr. Jerdon's description of this bird. Dr. Jerdon, however, appears to have copied the words "with a rufous tinge on the back and belly" from Blyth's original description (J. A. S. B. xviii. p. 810).

It is certain thst no such tinge is observable in my Afghan birds, nor in any of my Himalayan or Kashmir examples, of *L. rufonuchalis*, presuming that Mr. Hume and I are right in our identifications.

(645) Parus cinereus, Vieillot.

The Grey Tit was very common and was breeding in May and June.

(660) Corvus culminatus.

Corvus culminatus, Sykes, P. Z. S. 1832, p. 96; Sharpe, Cat. B. iii. p. 20.

This is the only Crow observed in the Hariab valley, and it is very abundant there. It was nesting in the pine trees near our camp at Byan Kheyl in May. In the Kurrum valley, in fact, immediately you arrive at the foot of the eastern slope of the Peiwar Kotul, you find a Raven (*Corvus corax*, Linn., vel *lawrencei*, Hume) and the common Indian Crow (*C. splendens*, Vieill.), both common.

Bill from gape 2·2 inches.

(667) Nucifraga multipunctata.

Nucifraga multipunctata, Gould, Birds of Asia, pt. i.

I saw three Nutcrackers one day on the Peiwar Kotul, which I believe belonged to this species.

(668 *bis*) PICA RUSTICA.

Corvus rusticus, Scop. Ann. I. Hist. Nat. p. 38.

Pica bactriana, Bonap. Consp. Gen. Av. p. 383 (Afghanistan).

Pica sericea, Gould, P. Z. S. 1845, p. 2, "China" = (*P. media,* Blyth, J. A. S. B. xiii. p. 303, "Andes").

The common Magpie is excessively abundant in Afghanistan, and was breeding throughout May and June. In July numbers of young birds were brought into camp by the soldiers and caged.

It may be mentioned that it is not without a careful examination of a considerable series of Magpies from Europe and Asia that I have followed Mr. Dresser (B. of Europe) and Mr. Sharpe (Cat. B. vol. iii. p. 62) in uniting all the above species, which several authorities hold to be distinct.

With reference to *Pica bottanensis* I am not able to speak from my own experience; and it would appear that Dresser had not examined a specimen from Bhootan in preparing his article (*tom. cit.*). Mr. Hume (Lah. to Yark. p. 241) seems confident of its specific distinction.

(684) ACRIDOTHERES TRISTIS (Linn.).

Unknown in the Hariab valley, although abounding a few miles away on the far side of the Peiwar range. It is particularly abundant in the Kurrum valley.

Acridotheres fuscus of my first paper (Ibis, 1879, p. 448) is this species.

(687) STURNIA PAGODARUM (Gmel.).

Never seen but once, when I saw a flock on some willow trees. They were evidently passing through; for they were never seen again.

(706) PASSER INDICUS, J. & S.

The common House-sparrow of the Hariab valley. The Sparrows fly about in large flocks of sometimes two hundred to three hundred birds, of which about ten per cent. are *P. salicicola.*

In the Kurrum valley, which is separated from the Hariab only by the small spur of the Peiwar, *P. montanus* is the common Sparrow; at least such was the case in July, only a few *Passer indicus* being visible.

(707) Passer salicicola.

Passer hispaniolensis, Temm. Man. d'Orn. i. p. 353 (1820).

Passer salicicola (Vieill.), apud Jerdon, B. of Ind. ii. p. 364.

In the Tweeddale collection is a magnificent specimen, labelled Asia Minor, 12th May, which has the black of the upper surface descending over the rump onto the tail-coverts. This, I take it, must be the full breeding-plumage; but all my Afghan specimens which were shot in the same month agree with a Spanish specimen in having the rump and upper tail-coverts brown. Further, the Asia-Minor skin has the bar on the lesser wing-coverts pure white, as well as the striations on the back, while the Afghan birds and the Spanish one above mentioned have the same parts creamy white (see also Hume, Ibis, 1868, p. 240).

I am under the impression that the female of *P. salicicola* may always, or nearly so, be distinguished from the female of *P. indicus* by its greater size and more massive bill. *P. salicicola*, female, has also the back not so rufous, and has a large but faint black patch on the throat. During the months of May and June, when I used to shoot sometimes a dozen in an afternoon, I have never found any difficulty in separating the females of the two species.

Another way in which the two may be distinguished (in addition to Mr. Hume's distinctions, *loc. cit.*), which I have omitted above, is that in *P. salicicola* not only the shafts of the feathers of the lower tail-coverts are dusky, but also a large portion of either web, forming an arrow-headed patch, whilst in *P. indicus*, female, the shaft only is dusky.

(710) Passer montanus (Linn.).

Kurrum valley. Not observed in Hariab.

(714) EMBERIZA STRACHEYI.

Emberiza stracheyi, Moore, P. Z. S. 1855, p. 215, pl. 112.

I follow Mr. Dresser (B. of E. pt. 12) in keeping this species separate from *Emberiza cia*. My Afghan specimens are identical with those from Northern India in the collection of the late Lord Tweeddale, showing no white tips to the wing-coverts—a constant difference between the two species, as pointed out by Mr. Dresser (*op. cit.*).

The White-necked Bunting, as Jerdon calls it, is found on all the lower pine-clad slopes of the Safed-Koh, as well as of the Peiwar spur. It does not seem to affect the open country, where *Emberiza stewarti* is so very abundant. I found it breeding on the 19th June at the foot of the Peiwar Kotul at about 8000 feet.

(718) EMBERIZA STEWARTI.

Euspiza stewarti, Blyth, J. A. S. B. xxiii. p. 215.

Specimens from the Hariab valley agree with others from Northern India.

In the full summer-plumage the head is ashy white above, the cheeks, ear-coverts, and upper breast being pure white; the superciliary streak and throat jet-black; the back, rump, and pectoral band bright reddish chestnut, unspotted. In the winter the head and back become greyish brown, each feather dark-shafted, sparingly splashed with chestnut; the upper breast becomes smoky grey, a small spot under the throat only remaining pure white; the pectoral band becomes narrower and mottled with smoke-grey. The chestnut uropygium and upper tail-coverts remain unchanged.

This Bunting began to breed towards the end of April; and during the months of May and June I found great numbers of their nests. They were almost all situated under roots on sloping banks or hill-sides, and were composed entirely of dried grass. The eggs were generally four in number; but I have found five. They vary exceedingly, both in size and colour, in different nests—some sittings being pale blue thickly spotted with purplish brown, and with a few irregular bunting-like blotches and dashes. In another nest the eggs were much larger and coloured greyish white, profusely spotted and speckled with red-brown, and with the usual blotches deep purplish brown.

This is by far the commonest of the three Buntings which occur in the district, being everywhere abundant in the open country. One pair built their nest within a few yards of my tent, which was on the outer edge of our camp at Byan Kheyl, in the Hariab valley. The note is a feeble imitation of that of our English Yellowhammer, being neither so loud nor so prolonged.

(722) EUSPIZA LUTEOLA.

Euspiza luteola, Sparrm. Mus. Carlson. ii. pl. 93.

An exceedingly common species in Afghanistan.

I cannot find any account of the nidification of this Bunting, which breeds so plentifully in the Hariab valley. The first nest found was on the 19th June, and I was somewhat surprised that neither nest nor eggs were at all like those of other Buntings. The nest in question was built in a small bush about 2½ feet from the ground; it was cup-shaped, and composed of dried grass, stalks of plants, shreds of juniper bark, and lined with a few goat's hairs. It contained four eggs of a pale bluish-white colour, finely spotted with purplish stone-colour, the spots becoming larger at the thicker end; the eggs not having arrived from India, I cannot give their exact dimensions.

(725) HESPERIPHONA ICTERIOIDES.

Coccothraustes icterioides, Vigors, P. Z. S. 1831, p. 8.

I shot a male specimen, one of a pair, on the Peiwar range at about 9000 feet.

Iris reddish brown, bill apple-green (*yellow*? Jerdon), legs carneous.

This pair was evidently breeding.

(728) MYCEROBAS CARNEIPES (Hodgs.).

I only observed one pair, which I shot among the deodars near the camp at Byan Kheyl on the 30th April.

Iris hair-brown; maxilla brownish horn-colour, mandible whitish horn-colour; legs fleshy brown.

These specimens agree with Himalayan examples.

(738) Carpodacus erythrinus (Pall.).

The scarlet Grosbeak is not very abundant in our district; but I found it occasionally in small parties in May and the early part of June, afterwards in pairs. A male shot at Shalofzan in the Kurrum valley was apparently breeding; for the testes were much enlarged.

(741) Propasser rhodochlamys.

Pyrrhula rhodochlamys, Brandt, Bulletin de l'Acad. de St. Pétersbourg, 1843, p. 27.

I only saw this species upon one occasion, when I shot a male out of a pair in the pine-forest on the Peiwar range at 8800 feet.

The iris was light brown; bill greyish brown, mandible albescent; legs pinkish brown.

(749) Carduelis caniceps.

Carduelis caniceps, Vigors, P. Z. S. 1831, p. 23.

Not uncommon. I have seen it associating with *Metoponia pusilla*.

(751) Metoponia pusilla (Pallas).

Plentiful in the Hariab district, and remained in flocks until the early part of June, when they commenced to breed. I found a nest on the Peiwar range, which was placed near the extremity of a deodar branch about four feet from the ground, it was composed of dried weeds and strips of bark, and lined with feathers and goat's hair. Only one egg was in the nest, of a delicate bluish white, speckled at the thicker end with minute reddish-brown spots.

(761) Calandrella brachydactyla (Leisl.).

In small parties until the end of May, after which time I did not observe them.

(767) Alauda gulgula.

Alauda gulgula, Franklin, P. Z. S. 1831, p. 119.

The Indian Sky-Lark was plentiful in the Hariab district, where it was nesting in June. I only preserved one specimen, which, however, agrees well with Indian specimens.

Wing 3·75 inches.

(784) PALUMBUS CASIOTIS, Bonaparte.

Columba palumbus, Linn. ap. Blyth, J. A. S. B. 1845, p. 865.

The Himalayan Cushat is not generally common in the Hariab district. In one spot, however, in the pine-forest between the main range of the Safed-Koh and the village of Ali Kheyl a large flock could always be found in the month of April. By the middle of the next month they had all paired. I found several nests, but was not able to obtain the eggs.

(788) COLUMBA sp. inc.

I regret that I was unable to bring home any skins of the Rock-pigeon of Afghanistan; for I am now unable to say for certain to which species it belongs. I at first identified it with *C. rupestris*, Pall., but subsequently came to the conclusion, from the great variation in plumage in large numbers shot by the officers, that they were nearly all hybrids from intermixture with the tame pigeons of the villages.

TURTUR FERRAGO.

Columba pulchrata, Hodgs. in Gray's Zool. Misc. p. 85 sine descr. (1831).

Columba ferrago, Eversmann, Add. ad Zoogr. Ross.-As. iii. p. 17 (1842).

Turtur vitticollis, Hodgs., apud Hend. & Hume (Lah. to Yark. p. 274).

Turtur pulchrata, Hodgs., apud Hume, S. F. vi. p. 421; Legge, B. of Ceylon.

Turtur orientalis (Lath.), apud Dresser, B. of E. pt. lv.

It seems to me that Eversmann was the first author who applied a name to an Asiatic Turtledove which is distinctly described as having the tips of the rectrices white. The last few words of his description, however, which terminates as follows, "rectricibus apice albis, exceptis duabus mediis totis albis," are not quite intelligible to my mind. If the specimen he described had the two centre tail-feathers entirely white, it must have been an accidental variety, but of the white-, and not of the slaty-under-tail-coverts form. Failing the adoption of Eversmann's title, a new one would be required.

On examining a large series of the Asiatic representatives of our common European Turtledove (*Turtur auritus*), I find that I can only in part concur in Mr. Dresser's view ('B. of Europe') that there are not three species in Asia.

The form which has the lower tail-coverts, the outer margins of the outer pair of rectrices, and the tips of all pure white, should, I think, be considered worthy of specific distinction; but all the other birds, which have these parts of various shades of ashy-grey, belong, I think, to one species, which must stand under the title of *Turtur orientalis* (Lath.). In Japan a large race occurs (*Columba gelastes*, Temm.); and in the Indo-Burmese region a generally smaller race is found (? ♀ *C. meena*, Sykes), which has the lower tail-coverts of a still deeper shade of ashy: but still in point of size both these races run into one another; that is to say, some birds from Burma (I am writing of adults) are as large, or nearly so, as the largest from Japan, and, again, a few Japanese specimens are as small as the average Burmese ones.

Captain Vincent Legge states (*op. cit.*), "Latham unfortunately does not say what colour the under tail-coverts of his *T. orientalis* were." He certainly does not in the 'Index Ornithologicus;' but in the 'General Synopsis of Birds,' ii. pt. 2, p. 647, published in 1783, he describes "La tourterelle brune de la Chine" as having the "under tail-coverts pale cinereous grey."

Pallas's description of his *Columba rupicola* reads as follows:—"*C.* fusca, plumis gryseo-marginatis, subtus dilutior, rectricibus lateralibus extremo cinerascentibus." There can be little doubt to what species this refers; but Gmelin's description of *Œnas nigra*, given on the same page, is that of a pigeon, and not of a Turtledove at all, although Pallas gives the latter title as a synonym of *Columba rupicola*.

If my view of the case be considered by ornithologists to be the correct one, the synonymy of the species with ashy lower tail-coverts will run as follows:—

La tourterelle brune de la Chine, Lath. Gen. Syn. Birds, ii. pt. 2, p. 647, ex Sonn. (1783).

Columba orientalis, Lath. Ind. Orn. ii. p. 606, ex Sonn. (1790).

Columba rupicola, Pall. Zoogr. Rosso.-As. i. p. 566 (1811).

Columba meena, Sykes (partim), P. Z. S. p. 149 (1832).

Columba agricola, Tickell, J. A. S. B. ii. p. 581 (1833).

Columba gelastes, Temm. Pl. Col. 550 (1838).

Columba (*Turtur*) *gelastes,* Temm. et Schleg. Faun. Jap. pl. 60 B (1850).

Columba viticollis major, Temm., fide Bp. Consp. Gen. Av. ii. p. 60 (1857).

Columba viticollis minor, Temm., fide Bp. loc. cit.

Turtur meena, Sykes, ap. Jerd. B. of I. iii. p. 476.

Columba gelastes, Temm. et Schleg., apud Middend. Sib. Reise, Vögel, p. 189.

Columba (*Peristera*) *turtur,* L., var. *gelastes,* Temm., apud Schrenck, Vögel des Amurlandes, p. 389.

(796) TURTUR RISORIUS (Linn.).

Observed for the first time on the 10th June. Not nearly so abundant as the last species.

(802) PTEROCLES EXUSTUS, Temm.?

I saw a pair of Sandgrouse at the same hour on three successive evenings flying over the camp in the same direction.

(809) LOPHOPHORUS IMPEYANUS (Lath.).

Several people told me that they had seen Monauls on the Safed Koh and the Peiwar range; and the natives said that there were plenty of them; but I was unfortunate in never seeing one. Several officers had bought skins from the natives, I was told.

(819) FRANCOLINUS PICTUS, J. & S.

Occurs close to our district; but I have never seen or heard of it actually in the valley.

(820) CACCABIS CHUKAR, J. E. Gray.

Scarce. I obtained one nest on the 16th June. In the Kurrum valley the Seesee, *Ammoperdix bonhami,* was common, and *Ortygornis ponticeriana* occurs; for I saw one in a cage in the camp of the 5th Punjab Native Infantry.

(873) Rhynchæa capensis (Linn.).

Captain Cook, V.C. of the 5th Goorkhas, informed me that he had shot a Painted Snipe in the month of January near Kurrum.

(893) Tringoides hypoleucus (Linn.).

A few pairs were about the river in May.

IV.—*Notes upon some West-Indian Birds.*

By P. L. Sclater, M.A., Ph.D., F.R.S.

(Plate I.)

Mr. Lawrence's series of papers upon the birds obtained for the Smithsonian collection by Mr. F. A. Ober during his visits to the islands of Barbuda, Antigua, Guadeloupe, Dominica, Martinique, St. Vincent, and Grenada*, have greatly added to our acquaintance with the avifauna of the Lesser Antilles. I have on previous occasions† lamented the deficiency of our knowledge in this respect, and may offer our American brethren our congratulations on their discoveries in a field which, seeing that most of the islands belong to the colonial possessions of Great Britain, ought to have been occupied by us long ago. At the same time, English naturalists have done something towards the investigation of the Antillean avifauna since I wrote my article in 1871. With the kind assistance of the Rev. J. E. Semper, I have been able to give some account of the birds of St. Lucia‡; and Mr. Lister's exertions§ have recently added something to our knowledge of the birds of St. Vincent. An examination of the collection made by the last-named gentleman, now in the Museum of the University of Cambridge, and of some of Mr. Ober's duplicates, which Mr. Lawrence has kindly aided me to acquire, has enabled me to make the few notes which I here subjoin.

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* See Proc. U.S. Nat. Mus. 1878 and 1879.

† See 'Nature,' vol. iv. p. 473 (1871).

‡ See P. Z. S. 1871, p. 263, and 1872, p. 647.

§ See his notes, *antea*, p. 38.

1. Cinclocerthia ruficauda (Gould).

Cinclocerthia ruficauda, Scl. et Salv. Ex. Orn. p. 19, t. x.

Mr. Lister's skin of this form from St. Vincent does not quite agree with the one in my collection, from which the figure in 'Exotic Ornithology' was taken, nor with others obtained by Mr. Ober in Dominica.

The St.-Vincent bird is darker above, especially on the head, and of a more greyish tinge below, especially on the throat and breast. The bill is ·2 inch longer.

The Dominica form comes nearer in colour to that figured in 'Exotic Ornithology;' but the bill is rather shorter even than in the form of St. Vincent, and the tail (in both examples) is considerably shorter.

It is certainly a very singular fact in distribution that the birds of this genus in Dominica and St. Vincent should be *more* nearly alike than that of the intermediate island of St. Lucia, where the very easily distinguished form, *C. macrorhyncha*, nobis*, occurs.

Future writers, who have a better series, may think it necessary to separate the St.-Vincent and Dominica birds specifically; but it will be a difficult question to decide which is the true *Cinclocerthia ruficauda*, the locality of the original specimen being unknown, and the type not to be found!

2. Margarops herminieri (Lafr.).

Margarops herminieri, Lawr. Proc. U.S. Nat. Mus. i. p. 52 (Dominica), p. 187 (St. Vincent), p. 351 (Martinique), p. 452 (Guadeloupe).

My skins of this form from St. Lucia, obtained by Mr. Semper (P. Z. S. 1874, p. 268), are so different from those of Dominica (*Ober*), that I think it necessary to separate the St.-Lucian bird as a distinct species. Lafresnaye's type of his *Turdus herminieri* (Rev. Zool. 1844, p. 167) was from Guadeloupe. As Mr. Lawrence says nothing on the subject, we may assume that the same form is repeated in Martinique, St. Vincent, and Dominica. The form of St. Lucia may be described as follows:—

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* Ex. Orn. p. 21, pl. xi.

3. MARGAROPS SANCTÆ-LUCIÆ, sp. nov.

Suprà cineraceo-brunneus unicolor; capitis et cervicis lateribus dorso concoloribus; gutture pallidè fulvo, brunneo striato; pectore et ventris lateribus brunneo squamatis, plumis medialiter albis, indè brunneo submarginatis; ventre medio et crisso purè albis; axillaribus et subalaribus albis brunneo striatis; remigum et rectricum paginâ inferiore cineraceâ; rostro et pedibus flavis: long. tota 10·0, alæ 5·5, caudæ 4·0, tarsi 1·7.

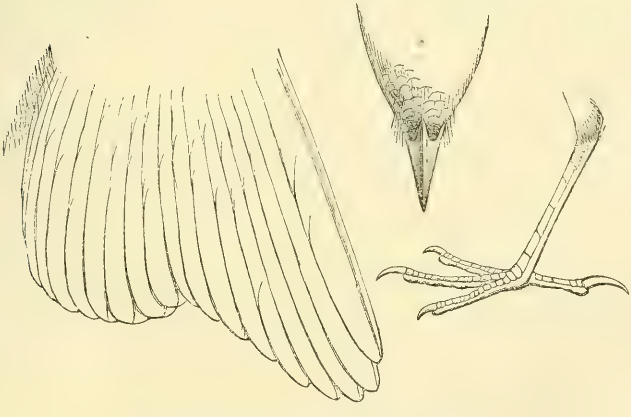
Hab. Ins. Sanctæ Luciæ Antillarum (*Semper*).

Mus. P. L. S.

Obs. Diversa a *M. herminieri* colore dorsi dilutiore, maculis nigris pectoris nullis, necnon alis et caudâ longioribus.

4. CATHAROPEZA BISHOPI. (Plate I.)

Leucopeza bishopi, Lawr. Ann. N.Y. Acad. Sc. i. p. 151, et Proc. U.S. Nat. Mus. i. p. 189.



Wing, bill, and foot of *Catharopeza.*

Mr. Lister's collection contains examples of the bird described by Mr. Lawrence as *Leucopeza bishopi*, which I have examined with great interest. Mr. Lawrence has referred this peculiar species to the genus *Leucopeza,* which I established (P. Z. S. 1876, p. 14) on a bird discovered in St. Lucia by Mr. Semper. But I do not think it possible to refer these two forms to the same genus; and I therefore propose the name *Catharopeza* (*καθαρὸς, clarus,* et *πέζα, pes*) for Mr. Lawrence's bird. *Catharopeza* differs from *Leucopeza* in its shorter and broader bill, the slight bristles on the rictus, the shorter tail, and rather shorter and stouter tarsi.

Mr. Lister obtained examples of this species in both the plumages described by Mr. Lawrence, and, curiously enough, marks the white-gorgeted bird as a female and the brown-throated one as a male. But I have little doubt that Mr. Ober (as quoted by Mr. Lawrence) is correct in his statement that the *adults* of both sexes are similar in plumage, and that the brown specimen is a young male.

The plumage of *Catharopeza* is quite peculiar among the Mniotiltidæ; but I agree with Mr. Lawrence that it must be referred to this family.

The figures (Plate I.) are taken from Mr. Lister's specimens, and represent, according to the views expressed above, an adult female (the male being similar) and a young male in the background.

5. MYIARCHUS OBERI.

Myiarchus oberi, Lawrence, Ann. N.Y. Ac. Sc. i. p. 48.

I have examples of this species from Dominica, received direct from Mr. Ober, and kindly obtained for me through Mr. Lawrence. Mr. Taylor's specimen from Dominica, and the skins of Mr. Semper from St. Lucia (*M. erythrocercus,* mihi, P. Z. S. 1871, p. 271) belong to the same species. In my opinion therefore *M. oberi*=*M. erythrocercus,* concerning which species *cf.* Ridgway, Proc. U.S. Nat. Mus. i. p. 138.

6. CYPSELOIDES NIGER (Gm.).

Cypseloides niger, Scl. P. Z. S. 1865, p. 615.

Mr. Lister's specimen of this species agrees well with Jamaican examples in my collection. Mr. Ober does not appear to have noticed this bird, as it is not included in Mr. Lawrence's catalogue.

7. CHÆTURA DOMINICANA.

Chætura dominicana, Lawr. Ann. N.Y. Acad. Sc. i. p. 255.

Chætura poliura, Lawr. Proc. U.S. Nat. Mus. i. p. 62.

Mr. Lawrence was quite right in separating this species from *C. poliura* (vide P. Z. S. 1870, p. 329). But although Buffon's figure (Pl. Enl. 544. fig. 1) is very bad, I should have been inclined to refer the Dominican *Chætura* (mainly from the locality) to the "Hirondelle de la Martinique," and to call it *Chætura acuta* (Gm.).

V.—*Ornithological Letters from the Pacific.* No. I.

By OTTO FINSCH, Ph.D.

Honolulu, July 28, 1879.

AFTER eight days' stay in Washington, where I spent a pleasant time with Professor Baird and other old friends in the Smithsonian, and saw the foundations of the new grand Museum-building, we went straight through to the Pacific coast, and reached San Francisco on the 31st of May. The members of the California Academy of Sciences most cordially welcomed me. The Academy unfortunately cannot yet dispose of the liberal gift of Mr. Lick (I believe 600,000 dollars), and therefore has still its head quarters in the old church. Their collections are very limited, and cannot be compared with those in Woodward's Garden, which have been amassed by the zeal of Mr. Gruber, now keeper of the Museum there. Woodward's Garden, although intended more for pleasure and amusement than pure science, is certainly a most interesting institution, and just what San Francisco and America generally require. Mr. Gruber has carried out an idea which I had long ago in my mind, and which Mr. Wallace portrayed in the drawings of his work on the distribution of animals. This is a representation of the chief types of the different zoological centres of the globe by giving good illustrations of the fauna of the different parts of the earth in stuffed specimens, in accordance with the peculiar flora. This very instructive invention, which Mr. Gruber calls a "Zoographicon" is not only made to rotate as a whole, so that the different views follow each other, but the chief representatives of it are also in motion: the Woodpecker hammers; the Dipper dives; the Ducks swim, and so on. This gives the whole a Marionette-like character, which of course is very attractive to the greater part of the visitors. The "Zoographicon" is always crowded!

The Menagerie in Woodward's Garden excels that of some of the smaller gardens in Germany, and contained some birds seen alive by me for the first time, e. g. *Anser albatus, Alca cirrata,* and *Diomedea brachyura.* The last-named species I saw afterwards in free nature. We left San Francisco in the 'City of New York' for Honolulu on June 9th. The bay was swarming with Gulls (*Larus occidentalis*) and *Uria californica,* the latter reminding one in its manners of the flocks of its smaller relative (*Mergulus alle*), which we had met with on the Atlantic when passing the banks on the 2nd and 3rd of May. But *Mergulus* is much more lively than *Uria*! As we approached the gigantic rocky islands (the Farralones), the Gulls increased in number, and flocks of *Mormon cirrata* were passing by. They make a very striking appearance in bird-life, and are easily recognizable by their red bills, and yellow ear-tufts. We had scarcely lost sight of the Farralones when the first Albatrosses made their appearance. There were first two, then four, a short while after twelve, behind the steamer, quarrelling with the Gulls over the refuse from the kitchen thrown overboard. The next day (June 10) Gulls had disappeared, and Albatrosses were the only visitors near the steamer. They were all *Diomedea brachyura,* and were all young birds in the uniform dark-brown garb of immaturity. Some specimens were changing plumage, showing more or less of a white band and white rump and lower tail-coverts; some were light-coloured beneath, below the breast. These Albatrosses were to be seen every hour of the day in smaller or larger numbers, varying from four to forty, careering around the vessel even after sunset. The flight of these birds is very fine; they seem to swim above the water, and often for a long while do not move the wings at all.

When they alight on the water they stretch out the legs forwards like Vultures. They can raise themselves easily by making a few steps on the water with their feet. They snap at every thing that falls overboard, even such unpalatable things as old baskets, &c., and could be easily caught with a hook, if the steamer were not going too fast. It seemed that these flocks which followed our steamer consisted every day of different individuals; for on the 11th of June nearly the whole day an Albatross kept in sight of us, which was easily recognizable by having a collar of red ribbon around its neck. This bird had no doubt been captured and liberated again, decorated in this manner. The Albatrosses were, as mentioned already, nearly the only birds we saw in this part of our voyage. Besides, I observed only occasional single specimens of a dark-coloured *Puffinus* (white underneath) and of a small kind of Storm-Petrel (*Procellaria*). The Tropic-bird (*Phaëton*) was not seen until we caught sight of the Hawaiian Islands (Hawaii itself) on the 16th of June; at the same time I observed a Frigate-bird (*Tachypetes*) soaring like a rapacious bird high in the air, but easily recognizable by its forked tail. When land was approached the Albatrosses became rarer, and finally disappeared altogether.

As the 'City of New York' got fast on a reef going into the harbour, we were not landed at Honolulu before the morning of the 17th June. In passing through the streets of the garden-like city, the eyes of the stranger are caught by the immense numbers of Mainas (*Acridotheres tristis*, I believe), which have been imported from China. These Mainas are a great nuisance to the inhabitants, as they drive away the Pigeons and Fowls, and are said to destroy the nests and eggs of the domestic birds. That they do drive out the Pigeons from their houses I observed many times myself. Their nests, which are constructed of fine roots and twigs, form great disorderly heaps, and contained two young ones (very young and still naked), or two eggs, in colour bluish, like that of our Starling (*Sturnus*). The Mainas are ever active and noisy; and the noise made by hundreds crying at their roosting-places is indescribable. In Mr. Barning's garden, where the finest trees, chiefly palms, abound, hundreds and thousands come to roost; and their unharmonious concert lasts from six in the evening for an hour or more. The same is the case at daybreak (a little after five o'clock). Next to the Mainas our House-Sparrow (*Passer domesticus*) takes the chief place; and it is very interesting to the stranger from the west to see his fellow-countryman, the Common House-Sparrow, located in cocoanut-trees in company with Mainas, just as if it had always been accustomed to this tropical tree. Besides the noise of the Mainas, and the chirping of the Sparrow, the call of a Turtle Dove is to be heard in every garden. This is also an introduced species from China (*Turtur chinensis*). These three species were all I saw during a week's stay at Honolulu. Even some excursions into the environs, to Punch-bowl Hill and a neighbouring valley, made me acquainted only with two other birds—namely, a species of *Carpodacus*, imported from California, and the Short-eared Owl (*Otus brachyotus*). The latter seems to pursue a very different kind of life from what I saw of it in the tundras of Northern Siberia, and is hated by the inhabitants as a devourer of poultry.

The prospect being, as it appeared, not very encouraging, I left Honolulu as soon as possible, and started on June 24th for Mani, where we remained several weeks, stopping first at Waiehu, a lovely spot in the picturesque range of West Mani, where there are peaks of 7000 feet elevation, and then at Olinda, the summer residence of Mr. S. Alexander.

While crossing the desert-like isthmus from Malaea Bay to Waike I observed no other birds than a few Mainas and the Turtle Dove; but when I visited the small lagoon near the latter place I was gratified with the sight of *Fulica alai* and *Gallinula sandvicensis*. Both species I observed repeatedly at the lagoon of Kahalui (Mani) and near Waimanalo (Oahu). In manners, habits, and cry both these birds closely resemble their allies in Europe; but both are undoubtedly different species. The Coot may at once be easily distinguished by its uniform pale greyish feet, without any greenish band on the joint of the knee. Besides, the cry is not so loud and harsh; and the eggs are smaller, as is also the bird. The eggs I got at the lagoon of Kahalui. Here I also observed *Actitis incana*, a *Charadrius* (like *C. hiaticula*), a *Himantopus*, which Mr. Dole designates *H. candidus*, but which seems to be identical with the American species, and a Snipe like our *Gallinago scolopacina*. This Snipe is not yet known from the Sandwich Islands, and is perhaps new. In the autumn the lagoon is said to swarm with Plovers (*Charadrius fulvus*), now breeding in arctic regions, and Ducks. Of the latter (*Anas wyvilliana*, Sclater) I saw flocks in the swamps near Waimanalo (Oahu). There were also a few Herons frequenting the reeds, and reminding me in manners very much of our *Nycticorax*, perching during the daytime in *Pandanus*-trees. They were of uniform greyish brown, and belonged apparently to *Ardea sacra*. The white form I observed once at Kahalui.

Reaching Olinda (about 5400 feet altitude), halfway to the Haleakala, I found native forests of Kokui and Ohia trees, and in them native bird-life. During ten days' stay in this region I got examples of only five species of birds, but observed some others, and one or two which seemed to me from their notes very peculiar, and which gave me the idea that these woods may hold a few unknown species. But it is very hard work to make observations in these forests, with their immense wilderness of fallen trees and shrubs, and still more difficult to shoot a bird, and to find it when shot. Naturalists who have seen the tropics of Africa and America, will wonder to hear that I succeeded in getting only twenty birds; but I had to do all the work myself, as the able bird-catchers of former days among the natives are nearly as extinct as the whole race. And in the same way are going the native forests, and with them the native birds. With the Oliva tree, on the wonderful red flowers of which the *Drepanis* feeds, will disappear these lovely birds, which formerly furnished the materials for the precious clothes of the kings. I observed many examples of *Drepanis coccinea* and *D. sanguinea*, and heard their nice little song, and got them. But it was moulting-time, and the birds did not make good specimens. But *D. coccinea* alive, with its bright vermilion bill and legs, is a wonderful bird. The stomach of both species contained nothing more than small seeds. Male and female of *D. sanguinea* wear the same garb. Quite different in manner and song is *Drepanis flava,* of which I got both sexes. The commonest species is *Hemignathus obscurus.* It goes in small flocks from tree to tree, reminding one in manners and its short call very much of *Parus,* and taking apparently an intermediate position between the latter and the Leaf-Warblers (*Phylloscopus*). As regards nesting I could make no observations, as the breeding-time was over, and most of the birds were feeding their young. One species, of which I shot an example thus occupied, would have proved new had it not been described a very short time ago by Mr. Dole (Hawaiian Almanac for 1879, p. 45) as *Drepanis aurea*). This little bird, which Mr. Dole described from Hawaii, is, no doubt, a *Hypoloxias*; and as the species is unknown in Europe, I give here a description of the old and young birds.

HYPOLOXIAS AUREA.

Drepanis aurea, Dole, Haw. Almanac, 1879, p. 45.

Uniform orange; quills blackish brown, margined externally with the same colour, but more sordid; covers of primaries and secondaries on the outer webs broadly margined with dull orange. Bill hornish-blue, tip blackish; iris dark brown. Stomach containing nests of insects (caterpillars); first and third primaries longest, first scarcely shorter.

Young (just able to fly, and fed by the former). Upper parts dull olive green, the outer margin of the dark brown quills and tail-feathers more vivid, the same as the tips of the secondaries, which form a pale cross band on the wing; lower parts pale olive-yellow, chin passing into whitish; bill horn-blackish, tip darker; feet black; third and fourth primaries longest, second equal to fifth, somewhat shorter, first a little shorter; tail twelve feathers. Tongue ordinary, bifurcated at tip.

These were all the birds I got; but, as mentioned above, I heard others—among them a very melodious song, reminding one of *Petrocossyphus cyanus.* The songster was, perhaps, *Chasiempis. Psittirostra psittacea* I saw repeatedly; but I lost those I shot, from their falling into the ferns.

I also got information of a very curious bird, which the natives call "*U-au.*" According to the description it breeds in holes underground on the mountains, resorting to its nesting-place only at night. I do not doubt that the bird is a species of *Puffinus*, as similar habits are known of allied species in the Fijis, Navigators' Islands, Tahiti, &c. To obtain information of this species, which Mr. Dole enumerates as "*Procellaria alba,* Gm.," I made a day's trip to a part of the Northern Haleakala ranges, where the birds were said to be breeding. Although I took the best guide I could get, we found nothing but a few old holes under the ferns, and an old dried-up white egg. The species remains, therefore, still uncertain; but I have no doubt that it is the same which I saw soaring in evening-time on the rocky coast near Lahama. The bird looked black, white below, and reminded me of *Puffinus obscurus.* Just as unsuccessful was our trip to the spot where *Bernicla sandvicensis* breeds in the gigantic crater Haleakala, as, on account of the exhausted condition of our horses, we could not get into the crater, but were forced to be satisfied with a look into it, a sight never to be forgotten.

My next letter will, I trust, contain notes from Micronesia, as we start tomorrow on board of the bark 'Hawaii' direct for Taluit (Bonham), the chief place of the Marshall Group. As this region is a little out of the way, a long time will elapse before I shall be able to write again.

VI.—*A further Contribution to the Ornithology of Asia Minor.*

By C. G. Danford.

(Plate II.*)

The principle that "every little helps" must be my excuse for the following rough description of another excursion in Asia Minor.

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* The accompanying sketch map of Asia Minor shows the routes (coloured red) described in the present and in my former paper (Ibis,

The time passed on the mainland was from January 1 to April 23, 1879. The number of species of birds identified was, considering the extent and varied character of the country traversed, not large; but as we moved northwards and westwards before the time of migration, many birds were missed which a longer stay in the south-eastern districts would doubtless have added to the list.

Among the species met with are no novelties, and only two which it is believed have not hitherto been recorded from the western Palæarctic region.

We reached Rhodes December 10th, and spent the short remainder of the year (1878) in making a tour through the greater part of the island, the route taken being by the west coast to Soronee, thence across country to Lindos, of knightly and ceramic fame, and so by the eastern shore back to the capital. The population of Rhodes is now scanty; and, with the exception of narrow strips by the sea-shore, there is but little cultivation. The interior is hilly, much broken up by earthquakes, and, though bare in some parts, is generally covered with evergreens, heaths, and aromatic herbs. Red-legged Partridges were everywhere numerous; Woodcocks had just began to arrive; and fallow deer were found among the myrtle and arbutus thickets of Dimilia and the pine-woods of Laerma. Birds in general, however, were very scarce, not more than twenty species having been seen—a fact probably attributable to the dryness of the island. Still, in the pine-woods Nuthatches and Woodpeckers might have been expected to occur; yet only one of the latter was observed. Lämmergeyers, Vultures, and other birds of prey were common; and on one occasion one of the smaller Eagles on being fired at, dropped a dead Marsh-Harrier.

1877, p. 261), also some districts previously visited and incidentally referred to. The configuration of the country is taken from an excellent map by the late Dr. Petermann. The principal towns are indicated by a circle with a black centre, smaller towns by a plain circle, and villages and halting-places by a black dot.

Sailing from Rhodes December 28, we arrived at Mersina on the morning of the 30th, and left the same day for Adana. With a culpably weak-minded reliance upon official statements, we travelled in arabas (covered carts), and not close to each other—the result being that though we ourselves and a large sum of money intrusted to our care reached our destination safely, though late, one of our men arrived wounded, and many of our effects never came at all, having been requisitioned on the way by a gang of Arabs, who, with much good sense, improved so excellent an occasion. Such a loss occurring at the outset of the journey was discouraging, and necessitated a week's stay at Adana to repair damages. Now the tailors of that town are not so very bad; but the bootmakers, though they showed considerable aptitude in copying the solitary boot recovered, had no good leather. Nor are there any scientific-instrument shops where to replace a lost aneroid; so that the heights given in this paper are merely guesses, guided by certain leading elevations laid down in the maps.

About the town are orchards and vineyards, the resort of Quails, Woodcocks, and Francolins; but the latter are most numerous in the large grass and reed-covered tracts by the banks of the Sarus. This river bounds the town on its eastern side, and is crossed by a many-arched bridge, dating from Roman times. Over this bridge lies the way to Missis, distant some six hours' journey, through a bare, flat, uninteresting country; and at that place is a somewhat similar structure, which spans the Jihan (Pyramus), a deeper, slower-flowing stream than that of Adana.

This river, so quiet near its outflow, we were again to see in its headlong course through the wild gorges of the Taurus, and finally to track to its birthplace in the high plateau beyond. In the meantime our road lay along its left bank, among thorn- and myrtle-thickets, where Bulbuls sang and Spanish Sparrows congregated, while the more reedy patches were haunted by Kingfishers (*Alcedo ispida, Ceryle rudis, Halcyon smyrnensis*), various Herons, and a few Ducks.

The low hills of Nur Dagh, a little to the south, are reported to hold plenty of Fallow deer, and the jungle growths by the riverside afforded abundant evidence of the existence of many pigs.

After passing Yilan Kalessi (Castle of the Snake) the road cuts off a bend, again striking the river at Yersofat, which here turns off to the north, its course being marked by large beds of reed and tamarisk. As far as the Djerid villages extends a flat open country, peopled by Kurds, Circassians, and Turkomans, whose habitations are, for the most part, miserable reed-built huts. Antelopes (*Gazella dorcas*) and Francolins abounded; and where there was a pool it was sure to swarm with Ducks (*Anas boscas, A. clypeata, A. crecca*) and Waders (*Recurvirostra avocetta, Himantopus melanopterus, Totanus ochropus*, &c.).

A short day's march from Djerid is Osmanieh, where we spent about a fortnight, and were much surprised at the paucity of birds in so good-looking a locality. At the back of the village are the wooded heights of the Giaour dagh, whence descend some quick clear streams, which, after traversing a narrow tract of bushes and stones, are either taken up by irrigation or lose themselves in the large reed-beds. The little *Drymœca gracilis* was here common, as was also the Chiff-chaff (*Phylloscopus collybita*)—a ubiquitous winter representative of the Warblers. Of Buntings there were *Emberiza cia, E. schœniclus* and *E. miliaria*, the first named being the most common throughout the country. On the streams we picked up *Cinclus aquaticus*, not so dark-breasted as in the Taurus, *Acredula tephronota*, and a few other well-known species. Francolins swarmed, especially near cultivated ground, where they might be seen in the morning flying off into the reeds like Pheasants into a well-stocked English cover. Among those shot was an isabelline variety of the female; and another great excitement was a hunt after a strange-looking bird, which turned out to be an albino Magpie, dirty white in the general plumage, with a smoky-coloured head and much-abraded tail. The best spoil of Osmanieh, however, was not ornithological, being a fine specimen of the leopard (*Felis pardus*), to obtain which was one of our principal objects in visiting these mountains.

We left Osmanieh January 23rd, and passing by the village of Dervish and the banks of the Hamus, ascended the evergreen-covered hills of the Giaour-dagh. Among the few fir trees our old friend *Sitta krueperi* was common enough; and the high-level valley near Bunaluk was well stocked with Francolins, though its elevation must be about 2000 feet. Bunaluk, or Baghdche, is a desolate sort of place, half Turk half Armenian, and is situated close up under the hills in a corner of the valley. Fallow deer were said to be numerous not far off; and as the horns shown us were unlike any hitherto seen, we were anxious to get a specimen. A bad fall had fairly laid me up; so some native sportsmen were dispatched, who outstayed the time allotted them; but we subsequently learned that they returned with camels laden with twelve deer and some antelopes.

From this point there are two routes to Marash; but the shorter being closed by snow, we followed the longer through the defile considered by some to be the Pylæ Amanides.

Snowdrops, colchicums, and crocuses were blooming on the eastern side of the hills, down which a sharp descent led to a village on the edge of a lonely marshy country. This was a part of the so-called plain of Bazardjik, on which, four hours further to the north, are the wretched hovels of Sarilar and the lake of the Giaour-geul.

By far the greater portion of this lake is so covered with tall reeds that it is impossible to get near the open water without using the native boats. These are regular "dug-outs," being hollowed from barked but undressed logs from 20 to 30 feet long. They are worked by a paddle at each end, and are by no means bad craft when there is no wind to create a wash.

A lot of reeds thrown in made dry seats, on which N. and I patiently sat while a good quarter of a mile of thickish ice was broken through before we emerged onto the more open water, which had been kept from freezing by the wind. However, the sight that met us was well worth the trouble; for on every side rose myriads of Ducks, *Anas boscas, A. acuta, A. clypeata, A. strepera,* and *A. crecca* being the most numerous.

Coots and Pygmy Cormorants were in legions and many Eagles sailed about, scaring the Ducks, but too lazy and well fed to make a dash at them. There must be some peculiar feeding to attract such quantities of wildfowl to this lake, the excellent flavour of all species of Ducks killed on it being an additional proof of this.

By this time our men had found another craft; so, proceeding together, we crossed an open piece of water, and pushing through some long winding reed alleys, arrived at the island, a place which even the Sarilar people had described as too filthy to visit. It is a miserable patch of ground, almost level with the water, and, being covered with a deep débris of Coots' wings and fishbones, has the most "ancient and fish-like smell" conceivable. The inhabitants of the eight or nine reed huts are of a very peculiar type; indeed the description given by Prjevalsky of the lake-dwelling population of Lob-nor so exactly suits the natives of the Giaour-geul, that one cannot help thinking that these few isolated beings must be a relic of some similar tribe.

Pressingly as they entreated us to stay, we found five minutes of the stench enough, and, quitting their domain, set to work looking for small birds; but the day being cold and windy, only a few Bearded and Penduline Tits and some Warblers (*Sylvia melanopogon* &c.) were visible.

Leaving the lake, the road passes by the village of Ali oglu, over some bush-covered hills, along the banks of the Ak-soo, through that stream, and across marshy ground to the town of Marash, on the barren red-earthed slopes of the Achyr-dagh, which forms part of the Taurus.

The Giaour-dagh runs up to this range almost at right angles, being here separated from it by the valley of Ak-soo, and further on by the river Jihan. In most maps of Asia Minor the geography of its south-eastern corner appears to be inaccurate. For instance, the mountains of the Giaour-dagh are shown as disconnected from those of the Lebanon, whereas they really seem to form a continuous range, the Anti-Lebanon being also prolonged by the hills running to the north of Aintab. Between these lines of elevation is a tract marked as the Plain of Bazardjik, but which actually comprises a district much broken up by inferior hills enclosing small marshy plains. The probable reason of these errors is, that this country, which is still rather unsettled, was, at the time when the surveys were made, much more disturbed, being then in the hands of independent Dereh Beys—a state of things which made mapping difficult.

Finding little at Marash, except some wonderful Snipe-shooting, we took a south-easterly direction to the other side of the lake, where we put up with some Kizil-bashes, who, in spite of their bad reputation, seemed decent fellows enough. A large lynx-like cat (*Felis chaus*) frequents this locality; and we met with one while crossing over flat rushy ground to the limestone hills, which must be surmounted before reaching Aintab. This is a large uninteresting town, lying at an elevation of 2700 feet, well built, and surrounded by enormous cemeteries. One of our men having caught fever in the rice-marshes at Marash, we were compelled to halt here for a day or two, noting a few birds, amongst which were Rock-Pigeons at the castle, and Egyptian Turtledoves about the trees and buildings of the town. From Aintab was an easy stage to Arul, where the blue and purple hills of Mesopotamia came into view; and the next day, after passing by the large olive-groves of Nizib, we descended by gentle slopes to the valley of the Euphrates. Very picturesque are the old castle and town of Biledjik, set on the chalky rocks and high ground of the opposite side of the river. Very quaint too are the clumsy high-stemmed low-sterned ferry-boats, which keep up the municipal exchequer by the tolls derived from the daily transport of many passengers and vast numbers of camels, this being the main line of traffic between Mosul and Aleppo.

Taking up our quarters in the house of a Turkish gentleman, whose most considerate hospitality made our stay very pleasant, we made several short excursions up and down the river. Early as it was (February 14), some of the larger Birds of prey (*Haliaetus albicilla, Aquila bonellii*) had long begun breeding. The nests of the former contained two, and even three eggs, and were built on the cliff-edges, with some small bush as a foundation, whilst those of the latter were always placed on the rock itself, all eggs of both species being well advanced in incubation. *Buteo ferox,* common here and throughout the country, did not seem to have begun laying; nor had any of the smaller Hawks. On the rocks were numbers of Pigeons (*Columba livia*) and a few Wall-creepers (*Tichodroma muraria*). Among the orchards were Tits (*Parus major, P. cæruleus*), a solitary Woodcock, and Woodpeckers (*Picus syriacus*), the females of this bird being much more numerous than the males. These orchards, containing almost the only trees of the district, would, later on, be capital collecting-places during the tide of immigration, which doubtless sets strongly along the valley of this river. Already there were signs of its flow in the presence of a few Hoopoes and a flock or two of Geese; but the most interesting of the new comers was an Ibis (*Geronticus calvus*). We had already been told at Aintab that a strange bird was to be found at Biledjik and nowhere else; so that one of our first inquiries was about it. "The Kel Ainak has not yet arrived," said the governor; "but we expect it the day after tomorrow." True to the time (February 16) came a pair of these birds; but it was not until the 18th that the first large instalment appeared, and we were able to make out that they belonged to the genus *Ibis.* They were at first very restless, flying round the town in strings of from five to fifteen individuals; but as evening came on they circled lower, and presently came the governor and his satellites bearing one which he had himself shot. Now, as the Kel Ainak is a semi-sacred bird, his taking the odium of its slaughter upon himself was a special act of courtesy, deserving of special recognition. At dawn next day we brought down another specimen from its roosting-place on a long ledge of the castle-rock, where they breed, and there only; for they never go more than a mile or two further up the river, and that merely to search for food. Doubtless many colonies exist lower down; and it is probably this species which is alluded to in a narrative of the Euphrates Expedition* as "the black Ibis which builds its nests by thousands in the ramparts" of Racca, nearly in the latitude of Aleppo. Another bird whose acquaintance we here made was that charming little Partridge *Ammoperdix bonhami*, whose delicately tinted plumage is such an exact reflection of the grey and pearly tones of the surrounding landscape. The Tchil Keklik, as it is called, is rather local, and frequents the stony places near cultivated ground up to a considerable elevation. Its note is very distinct, its flight quick, strong, and short, and its habits much the same as those of the Chukar, in whose company it is sometimes found. The coveys, however, seem to be smaller, seven being the largest seen; but perhaps they may be more easily thinned by Hawks than those of their stronger relations. The great desideratum at Biledjik is a boat, without which one cannot get at the waterfowl, who take good care to keep to the islands; but given that article and the proper time of year, it ought to prove a good station for the ornithologist.

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* Helfer (Travels of Dr. and Madame), vol. i. p. 236.

We left Biledjik February 19th, our host's (Sheik Mustapha) parting gift being the skin of a cheetah (*Felis jubata*) killed near here, and looked upon as a great rarity. The road at first follows the river under the cliffs, but soon strikes across cultivated ground, bordered by almond-hedges in full bloom, and passing over hills and valleys, drops down again to the water-side near the large village of Khalfetin. The upper levels of this region are chiefly desolate wastes of stones and grass; but parts of the river-bank and the bottoms of the valleys are clothed with fruit-trees, especially with walnut and fig, which grow to a great size. Pistachio-trees are also common, though the "Pistazien-Wald" of Kiepert's map has no actual existence, being, in fact, an oak-wood, the mistake doubtless having originated in the great resemblance which the stumpy oaks have when leafless to the pistachio, a few of which are also to be seen wherever there is a little cultivation.

We spent a few days with the governor of Khalfetin and Room Kaleh, a Kurd of high family, with a long emblazoned pedigree. In spite of his being more than eighty years old, he insisted upon going out shooting over the roughest of ground; and under his guidance we bagged a certain number of both species of Partridge. He also told us of a man who had shot a bird like a cock, with a long tail; but the place was two days off, and quite out of our way. Can it be that Pheasants are to be found in this quarter?

Our route lay along the opposite bank of the Euphrates river to the strange old castle of Room Kaleh, where the scenery is very imposing, the river being shut in with huge walls of iron-stained rock. Among the few birds seen were *Mergus merganser* and *Carbo cormoranus*. Again ascending, we left the river, and travelled by bad stony paths through upland valleys, whose only tenants seemed to be antelopes. This is the region of the "Pistazien-Wald" above alluded to, the oaks composing it giving place, as Marash is neared, to scrub and evergreens on the lower levels, and to pine-woods on the mountains.

February 28th saw us again on the move, first up the steep face of the Achyr-dagh to its ridge, where a good deal of snow still remained, and then down its north side, among pines and red earthy ravines.

The views were very fine on all sides, especially of the wild mountains inhabited by the revolutionary Armenians of Zeitoun, from whom, according to the alarmists, the least to be looked for was robbery. Certainly many of the Turkish dwellings near the river had been sacked and burnt, and the inhabitants of those remaining kept nightly watch at the bridges and fords; but so far as we were concerned the prophets of evil were at fault, nor do I believe that the armed European travelling through the most out-of-the-way districts of Asia Minor stands much chance of being molested. On the second day we passed some very grand scenery; for the valley narrowed to a gorge, high wooded crags rose on either side, while the ends of the vista were blocked by great snowy mountains towering against the pure blue sky. At last the path became nothing more than a partly scooped-out and partly built-up ledge overhanging the river, and at length reached a point where the opposing rocks almost met. The turning of this obstacle necessitated a high zigzag, the track soon after bringing us to the little village of Hadji oglu.

Any one wishing to shoot *Tetraogallus caspius* could not do much better than make this his station, surrounded as it is by the rocky heights of Atlu, Sarp-churu, and Beirut, all easy to get at, and said to be haunted by plenty of Ur Keklik.

Next morning the sky gave unmistakable warning of bad weather; so, giving up our intention of trying for the big Partridges, we hastened on, and, after a long march by narrow tracks along steep earthy hill-sides and stony stream-beds, reached some Kurdish huts just in time; for down came a violent snow-storm, which prevented our getting to Albistan for a couple of days.

This small town is close to the Palanga-owa, where Tchihatcheff's book had led us to expect wild sheep—an illusion which inquiry quickly dispelled; and we were fain to content ourselves with collecting the few birds then frequenting that cold upland region, and with trout-fishing at the springs of the Pyramus. The largest of these springs rises in great volume at the base of a limestone rock half an hour from the town, and, being shortly joined by many others, forms, within a few hundred yards, a clear stream 20 to 30 yards wide, and of considerable depth. In it are numbers of trout, those which we caught averaging more than half a pound, two that were netted being 5 lb. and 3 lb. respectively, while lower down the river they are said to reach a weight of 15 lb. The larger fish have very few red spots, are dark grey on the upper parts, dirty greenish yellow on the lower, and are broadly but obscurely barred; such fish as were not persecuted by yellow leeches being as red-fleshed as ordinary sea-trout.

Leaving Albistan March 8th, we went a day's journey eastward to Jarpuz, at the foot of the Bim-boghas mountain. Here we had two remarkable finds—the first being our binoculars, which had been stolen in January at the far-away village of Osmanieh, and the loss of which had prevented the identification of many birds; the second was a stag's horn of very singular form and great size, concerning the antiquity of which, and the species to which it belongs, authorities are in doubt.

From Jarpuz our route lay north to Maragos, and thence across the double chain of mountains which form the Anti-taurus. The division is made by a valley, through which runs a small sluggish stream said to be the upper waters of the eastern branch of the Sarus. The deep snow on the exposed bels (ridges) and among the juniper-forests made the passage of the mountains rather difficult; and it is only in very exceptional seasons that they can be traversed so early in the year. The junipers (*Juniperus excelsa*) are very large, and form almost the sole tree-growth of the higher elevations; among them Tits (*Parus cæruleus, P. ater*), Nuthatches (*Sitta krueperi*), and flocks of Snow-Finches (?) were the only signs of bird-life; but on descending to the fir-woods Cross-bills, Ring-Ouzels, and a few other species were observed. After the long rides of the last few days a halt at Azizieh was welcome enough; and it was a change to meet with Circassians, who here form the bulk of the population, their colony numbering sixty-six villages. This little town is a wonderful improvement on things Turkish, most of the houses being well built, with glazed windows, and the shops containing good bread, tea, and other luxuries. Close by are several small streams, from one of which a couple of large pike were taken with the casting-net; but they appeared to be void of trout. Ducks there were of many species; and unapproachable Cranes (*Grus cinerea*) stalked about the fields. Eagles, too, were numerous, *Aquila chrysaetos* being very common; but of the many nests visited, not one had yet been laid in; nor could we obtain any eggs of *Haliaetus leucoryphus*, though the birds were by no means rare; indeed, the only eggs taken belonged to a pair of *H. albicilla*, which had built in a solitary fir tree in preference to all eligible positions on the surrounding rocks.

From Azizieh to Kaisariyeh is three days' march over an undulating plateau broken up by hills, on whose tops are many conical earth mounds, probably ancient burying-places. At this stage of the journey occurred furious snow-storms, followed by hard frost, which brought down hordes of Ducks to the running streams, among them being numbers of Angot

(*Tadorna rutila*), a bird which is of very general distribution, and lives near the villages in a half-tame condition. About the rifts of volcanic rock were a good many Horned Larks (*Otocorys penicillata*) and Chats (*Saxicola erythræa, S. isabellina*), with a few flocks of Starlings (*Sturnus purpurascens* ?). From the summit of the pass over the Antitaurus we had already seen the solitary cone of Argæus, snow-clad from peak to base; and now, as we wound along through its fields of tufa and débris, the winds on its top whirled up the dry snow in a cloud that appeared to issue from the crater, and made one almost think that the long dormant fires had been stirred again.

Passing the conical Ali-dagh, and the large suburb of Talass, we reached Kaisariyeh, the point of intersection of the present and previous journeys. It was before mentioned as being a large place, with the best bazaars in Asia Minor; but no allusion was made to the remarkable number of old Seljoukian tombs in and about it, the conical points of which are generally surmounted by a stork's nest. It was too early for the gardens; but the stony levels were well stocked with Chats (*Saxicola erythræa, S. isabellina, S. œnanthe*), which arrive in this order. *Buteo desertorum, Sitta cæsia, Sturnus purpurascens* in huge flocks, *Machetes pugnax*, and *Larus canus* were among other birds met with; and from an Imperial Eagle's nest three eggs were taken, one of them evidently belonging to some other species, probably *Haliaetus leucoryphus*. Among animals we found gerbills (*Gerbilla erythrura*), house-inhabiting hamsters (*Cricetus phæus*), and the first instalment of that lively little creature, *Spermophilus xanthoprymnus*, which swarms over the whole of the barren interior. We were also assured by very good authorities that in the swamps near Injesu there is an animal like an otter, with a broad hairless tail, a description which, of course, points to the beaver.

We left Kaisariyeh March 29th; and after crossing by long stone causeways the marshy ground formed by the damming of the Melas in ancient times, we reached the hills bordering the Kizil Irmak and the bridge crossing that river. Here we found the Rosy-winged Bulfinch (*Erythrospiza sanguinea*) frequenting stony ground in pairs and flocks; and on the prairie country towards Kir-shehir were plenty of Sand-Grouse (*Pterocles arenarius*) and Plovers (*Charadrius geoffroyi*), the latter being on the point of laying. Kir-shehir is a small carpet-making town; but the collapse of the paper currency had closed the shops of this and many other places. From it the road passes through long orchards, where, for the first time, we saw Tree-Sparrows (*Passer montanus*), a species common at Angora. At Keuprikeui, where we halted for a day, *Saxicola erythræa* was building among the loose granite rocks; and the body of an Imperial Eagle's nest, from which we took two richly-marked eggs, contained the habitations of a pair of Kestrels and a number of both Common and Spanish Sparrows. Here the Kizil Irmak is again crossed by a very curious bridge; and the next feature of note on the way to Angora are the lakes of Emir-geul and Mohan-geul, about four hours distant from that town. On these sheets of water, which are partly fringed with reeds, most of the ordinary waterfowl were observed, except Ruddy Sheldrakes, who preferred to sit, like so many Eagles, on the jagged rocks at some distance from the water.

Angora, where we made a short stay, is an important place, built on two hills divided by a deep valley, through which runs an insignificant stream. Though one of the richest cities of Anatolia, it shows few signs of prosperity, and its bazaars are miserable; but it is a significant fact, that hardly any conscripts were drawn from this district, the heavy smart money being generally forthcoming.

Our best acquisition here was the common Grey Partridge (*Perdix cinerea*), a bird for which we had long been looking. It also goes by the name of Tchil keklik, and frequents the cultivated hill-sides to the south, and though by no means so abundant as *Caccabis chukar*, is still not scarce. We had also the rare opportunity of closely observing a large flock of Cranes (*Grus leucogeranus*). While on an excursion down the river, a large flock of birds was seen wheeling about in a very unsettled way: we at first took them for Storks; but they presently came close enough to show their very distinctive markings, and further down the stream a flock was met with feeding on a field of sprouting corn. There must have been about a hundred, moving slowly and regularly in a compact body. One of our party made a careful stalk to within a hundred and fifty yards; but the ball from the smooth-bore struck the ground just in advance of them, and so a fine chance was lost; nor did we encounter them again.

After leaving Angora it is prairie-land again, and there are Larks in legion (*Alauda calandra, A. bimaculata, A. cristata, A. arvensis, Calandrella minor*); but the smaller of the *Calandræ* is the most numerous. This is evidently the great breeding-ground of *A. bimaculata*; but though numbers were seen carrying building-materials, dissection showed that their eggs would not be laid for some time.

At the first halting-place, Baluk kujundje, there is a little rocky gorge, where Egyptian Vultures were repairing their nests, and an Eagle-Owl was left in peace to hatch her eggs. A solitary Purple Heron and about a dozen Night-Herons frequented the few willows that grew beside the stream, where we also found *Saxicola melanoleuca* and *Sylvia luscinia*. Next day the hot south wind, which usually gets up about midday and falls towards sunset, blew very strong as we travelled over a grassy country broken up by hills more or less isolated, but of less rounded character than those lately passed, and here and there limestone rocks veined with quartz; and on the wayside and the northern slopes a good deal of white efflorescence indicated the vicinity of the salt desert. This saline exudation was particularly strong on certain plains, which appear to have been once the beds of a chain of lakes, but are now mere grassy levels traversed by narrow reedy streams.

Great and Little Bustards, Sand-Grouse, and a solitary Egret (*Ardea garzetta*) were here met with; and every herd of goats and sheep had a following of Wagtails (*Motacilla melanocephala*). Like so many big buttercups they looked, as the green of their upper plumage exactly matched the surrounding herbage, leaving only their yellow breasts visible.

Both this species and *M. viridis* are of general distribution during the early spring, and are usually found in company.

From the rocks near the next village we took a nest of *Buteo ferox* and a pair of fine coloured eggs of *Aquila chrysaetos*. This Eagle is far less common than the Imperial, whose nests burden most of the few and far-between trees of this dreary region and beguile the tedium of the way, there being few ornithological minds which rise superior to the charm of harrying even a common Eagle's nest.

From Chanakdje the road descends to the valley of the Sakaria (Sangarius), a yellow-coloured, sluggish, narrow, but deep stream, which is crossed by a bridge called Kawindje, where is also a guard-house. Clearly distinct from the ordinary *Spermophili* were certain mammals of this genus which frequented the dry ground near the river. Though of the same size and habits as *S. xanthoprymnus*, they were easily distinguishable by their pale-yellow breasts and grey upper parts; and it is to be regretted that we failed to obtain specimens, as they did not occur again.

As the road now skirted some moderate-sized hills, villages became more frequent, pear-trees were in full bloom, and poplars and willows were green, other signs of spring being the presence of *Ruticilla phœnicurus*, *Muscicapa collaris*, *Sylvia rufa*, and a single *Cossypha gutturalis*.

Then came Hammam Kara Hissar, where Greek remains are more than usually abundant, though in this district of Galatia hardly any burying-grounds are undecorated with the shafts of marble columns, and few villages wanting in their reversed capitals, used as mounting-blocks. Other traces of ancient populations may be seen in the natives themselves, many of whom, by their features and red hair, show their Celtic origin.

Sivre Hissar (pointed castle), the next town one arrives at, is a striking place, situated, as it is, on the south side of a narrow hill whose ridge is formed of jagged and pinnacled granite rocks. In front is a fine view over a great plain, beyond which are the mountains of the Emir-dagh, near Afioun Kara Hissar, and further still those of the Kurshumdagh, in the direction of Konia. The castle itself has been constructed on the two highest peaks and the intervening gap. Only one of these peaks proved accessible, and, as far as birds were concerned, did not repay the climb, nothing being seen but Chats, Rock-Thrushes, Rock-Martins, and an unapproachable Golden Eagle's nest.

Nor is there much worth recording either in the aspect of the country or its fauna until one reaches Eski Shahir, a place remarkable as being the chief seat of the meerschaum trade. This substance is taken from pits some five hours distant, the formation extending towards Kutaiya and along the banks of the Sakaria. On leaving Eski Shehir the character of the landscape changes, the undulating plateau being quitted for a valley, wide and bare at first, but gradually contracting and becoming clothed with pine and oak scrub. Our attention was drawn to a *Buteo ferox*, which was doing valiant aerial combat with a large Eagle; and at our midday halt we took from the rocks two eggs of this bird, the nest being lined with mats of camel's hair. In a cave close by an Eagle-Owl was sitting hard, other nooks being tenanted by Lesser Kestrels and Egyptian Vultures, while at Bosujuk, a little further on, a couple of Choughs (*Pyrrhocorax graculus*) had established themselves in a rock above the village. About this point the descent from the elevated tableland began, and the scenery became very pretty. Thrushes, Nightingales, and Blackcaps in full song, flowers in profusion, fruit-trees in rich bloom, and, on either side of the quick-flowing stream, the fresh bright greens of the deciduous trees, mingled with the darker shades of varied evergreens, were all doubly grateful after the long wastes of the interior. It was with regret that we left this beautiful valley and struck across some much less interesting country to the red-roofed village of Bazardjik and the forests of the Kara-dagh. These woods are very extensive, and are chiefly composed of old oaks, varied with elms, a few silver spruces, and a thick undergrowth. From the guard-house on the ridge there is a splendid view, as, from grassy openings bright with primroses, violets, and bell-hyacinths, one looks across the far-reaching woods upon the massive snowcapped range of Olympus. Here we found Marsh-Tits (*Parus palustris*) for the first time, also Shrikes (*Lanius collurio*) and Redstarts (*Ruticilla mesoleuca*). But there were more wayfarers than birds, especially Circassian and Tatar refugees; and presently there passed a Turk of rank, lolling in a spring-carriage, with a bunch of primroses in one hand and a gay parasol in the other, his harem and household gods following in arabas of the lowest order. Other contrasts to his excellency were batches of disbanded unarmed soldiers, fine cheerful-looking fellows, who, after the fatigues of the campaign, were now trudging to their distant homes, ragged and penniless.

At Kurshunlu the forest ceases, and the road is through an open valley to the small town of Aineh-gul. Here a lake has been laid down by Kiepert and other map-makers; but there is certainly no lake there now, nor do any of the inhabitants ever remember its existence. Probably the word "gül," which by a slight difference in accentuation means either lake or rose, has been the sole warrant for placing a sheet of water in this locality.

Disappointed at not finding the collecting-ground anticipated, we pushed on, through Swiss-like scenery, by the side of Olympus to Aksoo and Kestel, and thence over a wooded plain to Broussa, reaching that most beautifully situated of Anatolian cities on the 25th of April.

The woods of this district contain bears and red deer of large size; and the English consul, Mr. Gilbertson, informed us that Pheasants, though generally becoming scarce, were still common near Lake Apollonia, where a couple of guns had, last year, killed over sixty head in two or three days' shooting.

From Broussa to Mudania, on the coast, was about four hours' drive; and thence an overcrowded little steamer carried us to Constantinople in about five hours more, leaving us to pursue our homeward journey by way of Varna and the Danube.

One of the first pieces of news which we heard in Constantinople was that our old assistant, William Pearse, had died in Cyprus, where he had gone to collect for the President of our Union. My brother members will, I am sure, pardon me for paying a passing tribute to the memory of one who, though in humble circumstances, was as kindly a man and as enthusiastic an ornithologist as I have ever met with.

It only now remains to acknowledge with thanks the universal kindness received from our Turkish friends, and from Mr. Henderson of Aleppo, Mr. Tattarachi of Mersina, Mr. Raad of Adana, Mr. Binns of Angora, and the members of the American Missions at Adana, Marash, Aintab, and Kaisariyeh, and finally to apologize to the readers of this paper for the quantity of rambling description, as compared with the small amount of ornithological matter, therein contained.

[To be continued.]

VII.—*Additional Notes on the Ornithology of Transvaal.* By THOMAS AYRES. Communicated by JOHN HENRY GURNEY.

(Continued from Ibis, 1879, p. 405.)

SYLVIETTA RUFESCENS (Vieill.). Short-tailed Bush-Warbler.

Male and female, Rustenburg, July 18 and August 9.

Irides hazel, bill dusky brown, with the basal portion of the lower mandible pale; tarsi and feet reddish brown.

This species is plentiful amongst the scattered scrub and trees, where it is to be found solitary or in pairs, creeping restlessly about the foliage.

PHYLLOSCOPUS TROCHILUS (Linn.). British Willow-Warbler.

One specimen shot at Potchefstroom, 22nd March.

This species appears yearly at Potchefstroom, more or less plentifully.

SYLVIA SALICARIA (Linn.). Garden-Warbler.

Male, shot 20th February, in full moult.

Female shot 22nd March, very fat; moult apparently completed.

This Warbler also appears yearly at Potchefstroom, where it is to be found sparsely in the hedgerows.

ACROCEPHALUS ARUNDINACEUS (Linn.). European Greater Reed-Warbler.

Male killed 20th March, moulting primaries.

Male, killed 22nd March; moult complete.

This species has been exceptionally plentiful about Potchefstroom during our summer of 1877–78. On one occasion early in 1878 I saw three or four together amongst some high weeds in the town; they also frequent hedge-rows and reed-beds.

AEDON LEUCOPHRYS (Vieill.). White-browed Chat-Warbler.

I found a few of these Warblers on the south side of the Magaliesbergen, about Oliphant's nek; but they are by no means plentiful in the Rustenburg district.

AEDON FASCIOLATA (Smith). Barred-breasted Chat-Warbler.

Cisticola fasciolata at p. 273 of Sharpe's 'Layard.'

I only saw two of these Warblers on the Magaliesbergen; they were amongst some low thorn bush on the south side, and were chasing one another about with so much activity that I had much difficulty in getting a shot, and only obtained one of them, a female; this was on 28th May.

CISTICOLA CURSITANS (Frankl.). European Fantail.

This is a scarce species about Rustenburg, as is also *C. tinniens*. I have found *C. cursitans* about Potchefstroom inhabiting mimosa-scrub, and also the open grass-field.

336. CISTICOLA RUFILATA (Hartl.). Rufous Grey-backed Fantail.

Female, Rustenburg, 17th July. Irides light hazel; bill pale bluish on the lower mandible, but with the tip and the upper mandible light dusky brown; tarsi and feet pale.

This is also a scarce species, frequenting dense jungle in gullies, singly or in pairs.

[The specimen sent has been kindly examined and identified by Mr. Sharpe; but it seems to me to be doubtful whether *C. rufilata* is in reality specifically distinct from *C. chiniana*. —J. H. G.]

Cisticola chiniana (Smith). Larger Grey-backed Fantail.

This is also an uncommon bird about Rustenburg; the specimen sent was one of two which I met with amongst scattered scrub.

337. Cisticola aberrans (Smith). Aberrant Fantail.

Sex uncertain, Rustenburg, 29th July. Irides hazel; bill dusky brown, paler on the under mandible; tarsi and feet pale.

I obtained this specimen amongst some tall grass in a ravine of the mountains; I saw one other, but did not succeed in getting it.

[In 'The Ibis' for 1868, p. 155, I mentioned that a note by Mr. Ayres on the habits of a *Drymœca* which was referred to the present species in 'The Ibis' for 1863, p. 324, really applied to *D. affinis*; Mr. Sharpe has overlooked this correction, and has quoted Mr. Ayres's note as referring to *Cisticola aberrans* at p. 272 of his edition of Mr. Layard's work.

I cannot agree with Mr. Sharpe's view, expressed in the same article, that *C. smithi* is merely the female of *C. aberrans*; *C. smithi* seems to me to be a distinct species, smaller, with the tail proportionally shorter, and usually more free from striation on the back, which (so far as I have observed) is always present, though not very distinct, in *C. aberrans*.

I have noted the following measurements of the two species:—

	Wing.	Bill.	Tarsus.
C. aberrans.			
Presumed ♂, Rustenburg..........	2·3	2·7	·08
♂, Mareco district................	2·3	2·6	·08
C. smithi.			
♂, Ovampo-Land	2·1	1·9	·07
♂, Rustenburg	2·1	1·6	·07
♂, Do.	2·2	1·7	·06
♂, Do.	2·1	1·7	·07
♂, Do.	2·1	1·6	0·7
♂, Potchefstroom	2·1	1·8	0·7
♀, Do.	2·1	1·8	0·7
♀, Pinetown, Natal	2·0	1·7	0·8

The above-mentioned specimens are all in my possession, except the last, which is preserved in the British Museum.—J. H. G.]

338. DRYMŒCA AFFINIS, Smith. Tawny-flanked Grass-Warbler.

Male, Rustenburg, June 6. Irides light hazel; bill dusky brown, the under mandible pale at the base; tarsi and feet reddish-pale.

Female, Rustenburg, August 2nd. Irides hazel; bill nearly black, the basal part of the under mandible ashy white; tarsi and feet pale.

This is a common species in the Rustenburg mountains, and is generally found in small companies.

[In 'The Ibis' for 1874, p. 101, I explained that a note by Mr. Ayres, which was applied to this species in 'The Ibis' for 1871, p. 150, was in reality intended to apply to *D. flavicans*. Mr. Sharpe, at p. 258 of his edition of Layard, has overlooked this correction.—J. H. G.]

DRYMŒCA FLAVICANS (Vieill.). Black-chested Grass-Warbler.

Sex uncertain (black gorget only partially developed). Shot near Potchefstroom, 24th May. Irides bright hazel; bill black, tarsi and feet light brown.

This is not a common species above the Magaliesbergen.

[Mr. Sharpe is not quite correct in saying at p. 254 of his edition of 'Layard,' that in this species "the tail-feathers never have a subterminal spot." In the majority of specimens these spots are absent; but I have four (all from Transvaal) in which they are not so: these specimens are a black-breasted male, killed 17th January, in which the spot is present (more or less distinctly) on all the rectrices, a similar male killed 20th February, a black-breasted female killed the same day, in which these spots are present, but less strongly marked, and a female without the black breast, in which the spot appears on all the rectrices, except the longest and shortest. The following are Transvaal specimens in my possession in which the subterminal spot is absent from the rectrices:—a black-breasted male and female, of which the date of the capture has not been noted; an unsexed specimen with hardly any trace of the black breast, killed 20th April; a male with partial black breast, shot 14th May; and another unsexed bird with very slight traces of black on the breast, which was obtained on 28th July.

Both the absence and presence of the black gorget and also of the dark subterminal spot on the rectrices in this species would seem to be due to causes of which we are at present ignorant.—J. H. G.]

SPHENŒACUS AFRICANUS (Gmel.). Pointed-tailed Grass-Warbler.

This species occurs in the Magaliesbergen, but is not very common.

339. ANTHOSCOPUS CAPENSIS (Gmel.). Cape Dwarf Tit.

Female, Potchefstroom, 8th April. Irides umber-brown, with an outer ring of pale blue; bill horn-black, but with the commissure nearly white; tarsi and feet blue-ash.

Female, Rustenburg, 29th May.

This is a common species in the Rustenburg District; but I have never met with its nest.

[I omitted to number this species when first recorded in Mr. Ayres's Transvaal lists in 'The Ibis' for 1878, p. 286; I have therefore now supplied the omission.—J. H. G.]

PARISOMA SUBCÆRULEUM (Vieill.). Rufous-vented Grignet.

This species is not uncommon about Rustenburg.

PARUS AFER, Gmel. South-African Grey Tit.

This Tit is common amongst the wooded hill-sides of the Magaliesbergen; it is a restless bird in its habits.

340. PARUS NIGER, Vieill. South-African Black Tit.

Male and female. Irides umber-brown; bill black; tarsi and feet pale ash-colour.

As far as I can remember, I have never met with this bird in the Potchefstroom district; but it is common about Rustenburg, and has similar restless habits to the species last mentioned.

Anthus caffer, Sund. Caffer Pipit.

Male, shot 2nd April. Irides dusky brown; bill the same, but with the basal part of the lower mandible pale; tarsi and feet pale.

This species is very common in open glades; I have obtained it in both the Rustenburg and Potchefstroom Districts.

341. Anthus lineiventris, Sund. Streaky-breasted Pipit.

Female, Rustenburg, 29th July. Irides light umber; bill pale, but with the ridge and tip dusky brown; tarsi and feet pale. Total length 7½ inches.

The stomach of the specimen sent contained grasshoppers and other insects; it is a very uncommon species, frequenting rocky hill-sides, especially where a stream issues from the rock.

342. Anthus brachyurus, Sund. Short-tailed Pipit.

Female, Rustenburg, 7th August. Irides light umber; bill, tarsi, and feet as noted in 'The Ibis' for 1863, p. 327.

This Pipit is found sparsely amongst the open glades of the hill-sides. I have not observed more than two or three together.

Alauda conirostris, Sund. Pink-billed Lark.

Female adult, a solitary bird shot on the open flats near Potchefstroom, 16th August.

Male immature (apparently quite a young bird), obtained 31st January.

Male immature (somewhat older than the preceding specimen) obtained 10th May.

Megalophonus nævius, Strickl. White-browed Lark.

Male, Rustenburg, 4th June. Irides hazel; bill bluish-pale, dusky on the ridge; tarsi and feet dusky pale.

Female, Rustenburg, 25th June. Bill pale, otherwise like the male.

Megalophonus planicola (Licht.). Plain-loving Lark.

Male, adult, Rustenburg, 19th August.

Male immature, near Potchefstroom, May.

I only saw two of these Larks in the Rustenburg district.

FRINGILLARIA FLAVIVENTRIS (Vieill.). Golden-breasted Bunting.

Female, shot 27th December. Irides dusky; bill, upper mandible and tip of lower dusky black, remainder of lower mandible dull brick-red.

This is a very common Bunting throughout the wooded parts of the Magaliesbergen.

343. FRINGILLARIA TAHAPISI, Smith. Seven-streaked Bunting.

Male in full adult dress, Potchefstroom, 4th February. Irides dusky; bill, upper mandible dusky brown, under mandible gamboge-yellow; tarsi and feet light yellowish brown (more yellow after death).

Female in nearly full adult dress, Potchefstroom, 7th April. Under mandible pale yellowish; tarsi and feet light brown, otherwise as in adult male.

Male in immature (or perhaps winter) plumage, Rustenburg, 23rd May. Under mandible pale, otherwise as in adult male.

This Bunting affects rocky hill-sides with little bush; it is found in small companies, and is generally very tame, feeding on the ground like the preceding species; about Rustenburg it is not common.

HYPHANTORNIS AURIFRONS (Temm.) Golden-crowned Weaver bird.

Female, Rustenburg, 2nd August. Irides light umber; bill, basal parts very pale yellow, ridge and tip delicate pale brown; tarsi and feet ashy pale.

This bird and the two species next mentioned were shot whilst feeding amongst the flowers of the parasitic plant that the Sugar-birds are so fond of.

HYPHANTORNIS MARIQUENSIS (Smith). Mariqua Weaver bird.

Male in winter dress, Rustenburg, 17th July. Irides reddish tawny-yellow; bill pale brown, lighter on the under mandible; tarsi and feet light dusky brown.

HYPHANTORNIS VITELLINUS (Licht.). Lichtenstein's Weaver bird.

Male in winter dress. Irides dingy tawny yellow; bill bluish pale; tarsi and feet light ash.

[I have recently compared this specimen with one from the Zambesi* in the British Museum, which was identified by the late Mr. G. R. Gray as *H. vitellinus*; and they appeared to be the same.

The present specimen is also identical with that which I referred (in 'The Ibis' for 1871, p. 254) to the Damara Weaver bird (*H. velatus*, of Vieillot)†; but on re-examining a Damara specimen in my collection, I am disposed to think that the latter, though very like the two Transvaal examples, is not absolutely identical with them, as it has the wing a trifle longer, the under mandible stouter, and the nostrils almost hidden by the frontal plumage, instead of being uncovered as in the two Transvaal specimens. The latter also much resemble the smaller specimens of *H. mariquensis*; but they have the wing shorter, the bill more elongated in proportion to its depth, and the foot smaller, especially as regards the length of the middle toe.—J. H. G.]

VIDUA PRINCIPALIS (Linn.). Dominican Widow bird.

Common about Rustenburg in small flights in winter plumage.

[Mr. Ayres sends a specimen shot 25th February in Potchefstroom, which appears by comparison with others at the British Museum to be an example of this species in its first plumage‡, with the striations on the upper parts, showing but slightly, in two shades of brown. Mr. Ayres states that in this stage it is very scarce: and he did not refer the specimen sent to this species; he says that it had the "irides dusky, bill dusky, with the gonys pale, the tarsi and feet dusky horn; it was a solitary bird, feeding on small grass-seeds, much as an ordinary sparrow would do." Another, but more advanced, immature specimen, shot near Potchefstroom, 13th March, has the striations on the upper surface much more developed, though the markings, especially on the head are less clear and bright than in the adult bird in winter dress. Mr. Ayres sends three adults in winter plumage, shot at Rustenburg on 26th July and 9th August, and a male in full breeding-dress shot at Potchefstroom, 30th January.—J. H. G.]

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* The Zambesi country is quoted as a locality of *H. vitellinus* by Finsch and Hartlaub, Vögel Ost-Afrika's, p. 396.

† *Conf.* Andersson's 'Birds of Damaraland,' p. 169.

‡ A specimen in similar plumage was erroneously described under the name of *Estrelda carmelita*, vide 'The Ibis,' 1868, p. 46, and 1873, p. 259.

344. CHERA PROGNE (Bodd.). Great Widow bird.

This species is found about Potchefstroom, as well as in the open valleys of the Magaliesbergen.

ORTYGOSPIZA POLYZONA (Temm.). Little Barred-breasted Finch.

This species is common about Rustenburg, and seems pretty well distributed throughout Transvaal.

345. ESTRELDA DUFRESNII (Vieill.). Dufresne's Finch.

Estrelda melanogenys, Sund.

I met with one or two small flights of these pretty little fellows; they were amongst low bushes and grass, hunting on the ground for small seeds, and were most of them in very poor plumage.

[Mr. Ayres sends a male shot at Rustenburg on 12th June, in which the black throat and ear-coverts are well-developed, showing that this plumage is maintained in winter.—J. H. G.]

ESTRELDA CYANOGASTRA (Daud.). Blue-cheeked Finch.

This is a very common species in the Rustenburg district; it is found in flights inhabiting bushy country.

[In 'The Ibis' for 1869, p. 294, I erroneously called this bird the "Purple-eared Finch," a name which is only applicable to the male of the more northern but closely allied species *E. phœnicotis*; in the southern bird the cheeks and ear-coverts are blue in both sexes.—J. H. G.]

ESTRELDA GRANATINA (Linn.). Granadine Finch.

Male, Rustenburg, 22nd June. Irides and eyelids scarlet; bill deep rose-red; tarsi and feet very dark ash-colour.

This species seems to keep very much to the low mimosa bush; it always occurs in pairs.

346. Petronia petronella (Licht.). South-African Rock-Sparrow.

Female, Rustenburg, 12th July. Irides umber; bill and upper mandible dusky brown, under mandible pale; tarsi and feet dusky ash-colour.

I only shot this one specimen, which was feeding on the ground in company with *Fringillaria flaviventris*.

347. Poliospiza gularis (Smith). Streaky-headed Sparrow.

This is as common a Sparrow about Rustenburg as *Passer arcuatus* (which I did not meet with in the Magaliesbergen) is at Potchefstroom. In habits the present species appears to be somewhat similar to *P. arcuatus*, congregating in winter in the same manner.

[In 'The Ibis' for 1864, p. 353, Mr. Ayres has given an account of *Poliospiza gularis*, as found by him breeding in Natal in December. Mr. Ayres's Rustenburg specimens were obtained in May, July, and August.—J. H. G.]

Crithagra chrysopyga, Swains. Golden-rumped Grosbeak.

This species is pretty common about Rustenburg, where I found it congregated and feeding amongst stubbles on the farms, and sometimes also on the flowers of the parasite that the Sugar-birds are so fond of.

[Mr. Ayres's specimens were shot in July.—J. H. G.]

348. Colius erythromelon, Vieill. Quiriwa Coly.

Male, Rustenburg, 24th June. Irides pale grey; bill, tip black, basal part and also bare skin round the eye crimson; tarsi and feet rose-red (female similar).

This is the only species of Coly that I found amongst the Magaliesbergen; it is there very common in families, and feeds on various berries; its flight is very much like that of some Parrots, rapid and straight, with very quick beats of the wings.

STREPTOPELIA CAPICOLA (Sund.). Cape Turtle Dove.

This Dove and *Turtur senegalensis* are very common about Rustenburg; enough for a pie may be got at any time in an hour or two.

COLUMBA ARQUATRIX, Temm. Rameron Pigeon.

I found this Pigeon scattered rather sparsely amongst the Magaliesbergen during the winter months; and, according to my brother, it is not much more plentiful in summer: they are generally solitary birds; but I once saw about twenty together.

COLUMBA PHÆONOTA, Gray. Roussard Pigeon.

These Pigeons were pretty common about the same district as the preceding species; and I saw them in pairs and shot some young birds amongst the ravines and precipitous clefts of the rocks, where, without doubt, they breed, and where I frequently heard their deep notes.

349. PHALACROTRERON DELALANDII, Bon. Delalande's Pigeon.

I found these handsome Pigeons somewhat scarce in the Magaliesbergen in winter; but my brother tells me that they are exceedingly plentiful there during our summer months, when wild fruits abound; they are fond of densely foliaged trees, keeping very quiet if any one approaches; and often one may walk quietly right under the trees where they are, when they dash out suddenly, generally one at a time. They are sometimes solitary, but often in small flocks; their food consists entirely of small berries; and for the pot they are not by any means to be despised.

FRANCOLINUS SWAINSONI, Smith. Swainson's Francolin.

Female, Rustenburg, 26th June. Bill black, but with the lower mandible and basal corners of the upper mandible scarlet; bare skin about the eye and throat scarlet; tarsi and feet black.

This species is exceedingly numerous in some parts of Magaliesbergen along the banks of the Crocodile or Limpopo River, and of the Eland's River, amongst the mountains.

350. Francolinus natalensis, Smith. Natal Francolin.

Female, Rustenburg, 25th June. Irides dusky hazel; bill reddish brown, but the base, gape, and cere pale dingy yellow.

This Francolin is not very plentiful just round Rustenburg; but amongst the mountains it is as common as the preceding one, frequenting the same localities, and always found in wooded situations close to water.

351. Francolinus semitorquatus, Smith. Coqui Francolin.

Male and female, Rustenburg, 19th June and 7th August. Irides bright hazel; bill dusky brown, except the basal part of the lower mandible, and also the basal corners of the upper mandible, which are chrome-yellow; tarsi and feet bright chrome-yellow.

This is the commonest of the Francolins amongst the mountains of the Rustenburg district, and is generally to be found in coveys in the more open valleys, where the ground is dotted with scrub and trees; these birds are seldom far from water. They remind me of the English Partridge in their movements and flight when disturbed; with a good dog a fair bag may easily be made.

[The male sent by Mr. Ayres has a few small black feathers scattered upon the cheeks, which may probably be the remains of immature plumage.—J. H. G.]

Eupodotis ruficrista, Smith. Rufous-crested Bustard.

Male, 28th June. Irides dusky tawny brown; bill lightish ashy, tinged with yellowish on the basal parts and dusky on the ridge; tarsi and feet nearly white.

Female, 26th June. Irides light tawny hazel; bill resembling that of the male; tarsi and feet yellowish white.

My brother and I came across a few of these birds on the Eland's River, in the Rustenburg district. They appear to be scarce and local, frequenting low thorns and other pretty thick cover.

[As Mr. Layard's description of the female of this Bustard in his 'Birds of South Africa' is unfortunately very meagre, I may mention that the hen bird sent by Mr. Ayres differs from Sir A. Smith's plate of the male* in the following particulars (in addition to the absence of the crest referred to by Mr. Layard), viz. :—The crown of the head is mottled with two shades of brown, similar to those which appear on the mantle; the slaty cheek-stripe and black throat-stripe are wanting; the throat and chin are white; the neck, above and below, and the upper breast are mottled with two shades of brown; a white pectoral band divides the mottled brown of the upper breast from the black of the lower breast and abdomen; and the white on the lesser wing-coverts is somewhat more extended. This last remark applies equally to the male sent by Mr. Ayres, which also differs from Sir A. Smith's plate in having the throat of a creamy white on either side of the black stripe, in the presence of pale drab feathers scattered amongst the slaty-blue feathers of the cheek-stripe, of many such feathers amongst the slate-coloured plumage of the sides of the neck, and also in the presence of several white feathers on both sides of the upper breast, forming an imperfect pectoral band in place of the complete white band which characterizes the breast of the female. With these exceptions, Mr. Ayres's male agrees with Sir A. Smith's figure; and the points in which it differs from it are, no doubt, due either to the remains of immature plumage, or to the commenced assumption of winter dress.—J. H. G.]

Œdicnemus capensis, Licht. Spotted Thicknee.

This species is sparsely distributed all over the Transvaal; at least in every part where I have been.

Cursorius rufus, Gould. Burchell's Courser.

This Courser is not nearly so common in the Rustenburg district as in that of Potchefstroom; but a few are occasionally to be met with.

Ardeola comata (Pall.) Squacco Heron.

Male in full breeding-dress, Potchefstroom, 25th October.

Irides very pale chrome-yellow; bare skin round the eye, gape, and bill about the nostrils bright grass-green; tip of bill for about an inch black; intermediate portion of bill and base (except round the nostrils) bright ashy blue; upper surface of tarsi and toes ashy, with a tinge of light chrome about the joints and feet. Stomach crammed with crabs.

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* Vide 'Zoology of South Africa,' Aves, pl. 4.

SARCIDIORNIS AFRICANA. African Knob-billed Goose.

Male, immature, Rustenburg, 25th June.

The specimen sent is the only one of the kind that I saw amongst the Magaliesbergen; it came down to a shallow pool one morning as my brother and I were at breakfast; and he made a successful stalk and floored it.

[The specimen sent is evidently a young bird in change; it has acquired the lustrous adult plumage on the wings, but not elsewhere; the feathers of the immature dress on the upper surface are a rather deep brown, edged with pale brown; the feathers of the sides of the upper breast and of the thighs are pale drab, transversely barred with dark brown; the remainder of the under surface is white, strongly tinged with drab, but unspotted, except very slightly on the under tail-coverts.—J. H. G.]

VIII.—*Preliminary Descriptions of new Birds from South America, and Remarks on some described Species.* By HANS, Graf von BERLEPSCH.

Fam. TANAGRIDÆ.

1. TANAGRA SCLATERI, sp. nov. (= *T. glaucocolpa*, Scl., nec *Tanagra glaucocolpa*, Cab.).

Hab. Orinoco district or Trinidad.

This bird is somewhat intermediate between *T. cana* and *T. episcopus*, having neither the plain blue shoulders of the former nor the whitish ones of the latter. The shoulders are of a beautiful whitish red or violet-blue, the outer webs of the wing-feathers of a more intense blue. The uropygium is likewise tinged with violet-blue. This species is more beautiful than either *T. cana* or *T. espicopus*; and I have seen many specimens, all of the same preparation, coming most probably from the eastern part of Venezuela (Orinoco district) or Trinidad.

True *T. cana* and true *T. episcopus* seem to be found in the same locality, as I have seen specimens of both, evidently of the same preparation as the first-named form.

2. TACHYPHONUS INTERCEDENS, sp. nov.

T. cristato affinis, pileo aurantiaco-flavo (nec rubro), colore corporis nigrescentiore, plagâ gulæ flavâ angustiore et vix distinctâ et uropygio flavo pallidiore distinguendus; alis longioribus. Quasi intermedius inter *T. cristatum* et *T. surinamum* esse videtur. Long. alæ 84 millim., caudæ 75.

Hab. Orinoco district or Trinidad.

Fam. TROCHILIDÆ.

3. HYLOCHARIS CYANEA, subsp. VIRIDIVENTRIS.

This is a northern form of *H. cyanea* of Brazil, from which it differs in its somewhat more splendid and vivid coloration. In particular I find the belly to be never mixed with grey, as in Brazilian specimens, but of a dark and splendid green colour.

This form I have seen from Venezuela (Merida), Trinidad, and the Orinoco district.

Fam. PICIDÆ.

4. CENTURUS TERRICOLOR, sp. nov.

Affinis *C. tricolori* (ex Bogotâ), sed major, et rostro longiore, latiore; capitis lateribus, gulâ et abdomine toto obscurè brunneo-olivaceis; ventre medio obscurè rubro (nec flavo-rubro); tectricibus caudæ superioribus inferioribusque nigro regulariter fasciatis, primo visu distinguendus. Long. alæ 108, caudæ 60, rostri 24, tarsi 19.

Hab. Orinoco district or Trinidad.

5. CELEUS IMMACULATUS, sp. nov.

This form, of which I have only a female in my collection, is most nearly allied to *C. elegans*, from which it seems only to differ in having the inner webs of the wing-feathers plain yellow, without the black bands or spots to be seen in that species. If I do not err, my specimen has the preparation of Panama skins (Agua dulce), from which locality, as yet, neither *C. elegans* nor *C. castaneus*, of Central America, has been recorded. Therefore it is quite likely that a somewhat intermediate form should be found in that locality, as my specimen seems to show.

6. CHLORONERPES RUBIGINOSUS (Swains.).

Of this bird I have received a great number of specimens from Orinoco or Trinidad (of a peculiar preparation), and a true Trinidad skin also. They are all very small in size; and all have a brownish or reddish suffusion on the breast (which is never the case in true *C. canipileus*), and have the uropygium of the same colour as the upper back, and unbanded, only the upper tail-coverts being banded.

This form, I think, must be the true *rubiginosus* of Swainson, described as coming from the "Spanish Main." Two specimens in my collection (male and female) from Merida are clearly not of this species, and are very little different from *C. canipileus* from Antioquia, &c., the dimensions being only slightly inferior; but they have the bill remarkably shorter, and the uropygium clear yellow and distinctly banded, just as in *C. canipileus*.

I do not know whether the specimens from Caracas, spoken of by Sundevall, belong to the latter species or to the true *C. rubiginosus*.

7. MELANERPES PULCHER, Sclater.

A male of this species in my collection from Antioquia has the neck distinctly broad and beautifully golden-yellow, which is not recorded in Mr. Sclater's original description, based on a specimen from Bogota.

IX.—*On the Birds of the Sierra Nevada of Santa Marta,* Colombia. By OSBERT SALVIN and F. DUCANE GODMAN.

(Plate III.)

SINCE our last paper on this subject was published (Ibis, 1879, p. 196 *et seqq.*), Mr. Simons has sent us three more collections of birdskins from the Sierra Nevada of Santa Marta and its vicinity. As will be seen in the following notes, a considerable proportion of the birds now sent were obtained at a place called Minea, a coffee-hacienda situated on the slopes of the mountains, at an elevation of 2000 feet above the sea, a few leagues from the town of Santa Marta. But besides working in this locality, Mr. Simons also made a journey to the higher parts of the Nevada itself, and succeeded in reaching an elevation of 17,000 feet. Here the more interesting part of his collection was formed. Several of the highland species prove to be undescribed, having allies representing them in the uplands of the northern ranges of the Colombian Andes, from which, however, they are quite distinct. With these distinct forms are found others, also inhabitants of the highland districts, which are not distinguishable from birds of the mountains of Pamplona and other parts of the Andes of Colombia.

Of the geographical results of his exploration of the upper parts of the Sierra Nevada, Mr. Simons has recently communicated an interesting paper to the Royal Geographical Society, which is published, with a good map, in the November number (1879) of the 'Proceedings' of that Society (p. 689). In this paper Mr. Simons describes the various places visited by him, giving their elevations and the outlines of the surrounding country.

As Mr. Simons is still at work, and as we may hope for considerable additions to our knowledge of the birds of this interesting district through his exertions, we defer any further general remarks on the relationship of its bird-fauna until the close of his expedition.

The additional species in the present collection are :—

TURDUS SWAINSONI, Cab.

Minea (2000 ft.), ♀, 22nd January, 1879. "Iris dark brown."

Agrees with Colombian examples, and with the eastern rather than the western race of this species (*cf.* Salv. & Godm. Biol. Centr. Am. Aves, i. p. 10).

TURDUS GRAYI, Bp.

Turdus luridus, Bp. Notes Orn. Coll. Delattre, p. 28; Salv. P. Z. S. 1867, p. 132.

Santa Marta, ♂, 19th February, 1879. "Iris reddish brown."

A specimen of this bird agrees accurately with the paler and more olive-coloured birds frequently found along with the typical *T. grayi* in Central America, especially in Costa Rica. These we now consider to be specifically inseparable from that bird, and therefore unite *T. luridus* with it.

MIMUS GILVUS, Vieill.

Santa Marta, ♀, 2nd April, 1879. "Iris bronze-green. A favourite songster here, its notes being more harmonious than those of the Trupial."

Precisely like Colombian and Central-American specimens, but differing slightly from the Venezuelan bird in the light markings of the wing-coverts (*cf.* Salv. & Godm. Biol. Centr. Am. Aves, i. p. 36).

POLIOPTILA NIGRICEPS, Baird.

Polioptila nigriceps, Salv. & Godm. Biol. Centr. Am. Aves, i. p. 52.

Valencia, 24th May, 1879. ♂ "iris bright chrome-yellow," ♀ "yellowish."

These birds agree fairly with Bogota examples, which we have recently (*l. s. c.*) decided to be inseparable from the species from Western Mexico described under this name. The outer rectrices have perhaps rather more black at the base; so that the bird thus approaches the Brazilian *P. leucogastra* rather than the Guiana *P. buffoni*, which has the outer rectrices almost entirely white.

CAMPYLORHYNCHUS GRISEUS (Sw.).

Santa Marta, ♀, 13th December, 1878. "Iris brown. Very common here, being a noisy bird and very lively, balancing itself on twigs by its tail. Have not seen it elsewhere."

Agrees with Venezuelan examples obtained by Goering (Scl. & Salv. P. Z. S. 1870, p. 783).

THRYOPHILUS RUFALBUS (Lafr).

Minea (2000 ft.), ♂, 16th January, 1879. "Iris yellowish brown."

Agrees with Panama specimens.

*TROGLODYTES TESSELLATUS, d'Orb. & Lafr.

Troglodytes tessellatus, Salv. & Godm. Ibis, 1879, p. 198.

Santa Marta, ♂, 25th February, 1879. "Iris darkish brown. Local name 'Cucarachero.'"

SIURUS NOVEBORACENSIS (Gm.).

Minca (2000 ft.), ♂, 17th March, 1879. "Iris brown."

MNIOTILTA VARIA (Linn.).

Minca (2000 ft.), ♂, 17th & 18th January, 1879. "Iris brown. Found amongst high trees."

PARULA PITIAYUMI (Vieill.).

Minca (2000 ft.), ♀, 6th February, 1879. "Iris brown; legs yellowish brown."

HELMINTHOPHAGA CHRYSOPTERA (Linn.).

Minca (2000 ft.), ♀, 8th February, 1879. "Iris brown; legs pale brownish coral-red."

HELMINTHOPHAGA PEREGRINA (Wils.).

Minca (2000 ft.), ♀, 14th January, ♂ 17th & ♀ 26th March 1879. "Iris brown."

DENDRŒCA ÆSTIVA (Gm.).

Minca (2000 ft.), 24th January, 1879. "Iris dark brown."

BASILEUTERUS CABANISI, Berlepsch.

Basileuterus cabanisi, Berl. Orn. Centralbl. 1879, p. 63.

Minca (2000 ft.), ♂, 30th March, 1879. "Iris brown."

A single specimen, recognized by Count v. Berlepsch as belonging to the species recently described by him.

*BASILEUTERUS MESOCHRYSUS, Scl.

Basileuterus mesochrysus, Salv. & Godm. Ibis, 1879, p. 198.

Chirua (4000 ft.), 21st August, 1878. "Iris rich brown. Found in forest."

BASILEUTERUS CONSPICILLATUS, sp. n.

Suprà olivaceus, alis et caudâ fere concoloribus; capite toto cinereo, maculâ in vertice medio aurantiaco-brunneâ, striâ utrinque nigrâ late marginatâ; fasciis infra et supra oculos albidis, hâc ad rostrum ductâ; subtùs gulâ grisescenti-albida, abdomine toto flavo; rostro obscure corneo, pedibus flavis. Long. tota 5, alæ 2·35, caudæ 2·3, rostri a rictu ·7, tarsi ·8.

Obs. *B. coronato* affinis, sed ciliis albis dignoscendus, striâ postoculari nigrâ quoque absente.

San José, ♀, 8th June, 1879. "Iris brown. Found in dense forest."

Mr. Simons sends us two specimens of this species, both marked "female," but from which the males would hardly differ in plumage. The bird is a rather close ally of *Basileuterus coronatus,* but differs in having conspicuous white marks above and below the eye (not seen in that species). The upper of these marks is produced forwards towards the nostrils, giving the bird the appearance of wearing spectacles; hence our name for it. *B. coronatus* has a black stripe running backwards from the eye, of which we can see no trace in the present bird.

*SETOPHAGA RUTICILLA (Linn.).

Setophaga ruticilla, Salv. & Godm. Ibis, 1879, p. 199.

Minea (2000 ft.), ♀ 16th, ♂ 15th, and ♂ 18th January. "Iris brown."

"In the densest forest at the tops of the highest trees; so can only be shot with very large charges. Very hard to see."

SETOPHAGA VERTICALIS, d'Orb. & Lafr.

Setophaga verticalis, Salv. Ibis, 1878, p. 311.

San Sebastian, ♀, 29th July, 1879. "Iris brown."

VIREOSYLVIA OLIVACEA (Linn.).

Santa Marta, ♀, 3rd April, 1879. "Iris brick-red."

Agrees with northern specimens.

VIREOSYLVIA FLAVIFRONS (Vieill.).

Minea (2000 ft.), ♀, 13th February, 1879. "Iris brown."

Agrees with northern specimens, the lower back being rather more tinged with olive than usual."

HYLOPHILUS HYPOXANTHUS, Pelz.

Valencia, May 1879.

CYCLORHIS FLAVIPECTUS, Scl.

Valencia, 28th May, 1879. "Iris brown."

DIGLOSSA ALBILATERALIS, Lafr.

Diglossa albilateralis, Scl. Ibis, 1875, p. 216.

Near San Sebastian (8000 ft.), ♂, 22nd June, 1878. "Iris brown; tongue long and forked."

Agrees accurately with Antioquia specimens.

DIGLOSSA ATERRIMA (Lafr.).

Diglossa aterrima, Scl. Ibis, 1875, p. 216.

Sierra Nevada de Santa Marta (11,000 ft.), 30th June, 1878. "Iris brown."

Ditto (10,000 ft.), ♂, 17th July, 1879. "Iris dark brown."

The male agrees with specimens from the Andes of Colombia and Ecuador.

DIGLOSSA, sp. inc.

San Sebastian, ♂, 27th July, 1879. "Iris brown."

A young male not at present determinable.

*CŒREBA CYANEA (Linn.).

Cœreba cyanea Salv. & Godm. Ibis, 1879, p. 199.

Minea (2000 ft.), ♂, 23th and 24rd January, 1879. "Iris brown; legs brilliant red."

CŒREBA CÆRULEA (Linn.).

Minea (2000 ft.), 14th, 23th, and 24rd January, 1879. "Iris brown; legs of male brilliant lemon-yellow; legs of female the same dingy green as body."

Many specimens.

CERTHIOLA LUTEOLA, Licht.

Santa Marta, 22nd December, 1878. "Iris brown. Found amongst bushes and dry twigs of dead trees; very lively in its movements."

*EUPHONIA LANIIROSTRIS, d'Orb. & Lafr.

Euphonia laniirostris, Salv. & Godm. Ibis, 1879, p. 199.

Santa Marta, ♂ ♀, 22nd December, 1878. "Iris brown."

Minea (2000 ft.), ♂, 6th February, 1879. "Iris brown."

"Local name 'Coronita.' Rather rare here, commoner at

Atanques. Feeds on the fruit of the Mango. A very restless bird."

*CALLISTE CYANOPTERA (Sw.).

Calliste cyanoptera, Salv. & Godm. Ibis, 1879, p. 200.

Minea (2000 ft.), ♂ ♀ 16th, ♀ 30th January, 1879. "Iris brown. Common amongst the tree-tops."

CALLISTE DESMARESTI, Gray.

Guallabal (3000 ft.), ♀, 23rd September, 1878; Minea (2000 ft.), ♂, 23rd January, 1879. "Iris brown. Found in high trees. Very common at Guallabal, near San Antonio."

PŒCILOTHRAUPIS MELANOGENYS, sp. n. (Plate III.)

Suprà fusca cæruleo tincta, uropygio paulo lætiore, capite summo et tectricibus alarum minoribus lætè cæruleis; alis et caudâ nigricantibus viridi-cæruleo limbatis; capitis lateribus nigerrimis; maculâ suboculari et corpore toto subtùs flavissimis: long. tota 8, alæ 3·5, caudæ 3·2, rostri a rictu ·8, tarsi 1·1. Fem. mari similis.

Obs. *P. lacrymosæ* affinis, sed capite summo cæruleo, genis nigris, et corpore subtùs flavissimo facile distinguenda.

Mus. nostr.

Near San Sebastian (8000 ft.), ♂ ♀, 22nd June, 1878. "Iris chocolate-brown. Called by the Indians "Guenaomi."

This is a very distinct species, allied to the Peruvian *Pœcilothraupis lacrymosa*, of which a specimen, of Jelski's collecting, is in Mr. Sclater's collection. These two birds are at once distinguishable from *P. palpebrosa* by the absence of the yellow patch at the side of the neck in that species, as well as by the bluish tinge of the dark upper surface.

TANAGRA CANA, Sw.

Santa Marta, ♀ 22nd and ♂ 27th December, 1878. "Iris brown. Local name 'Azulejo.' Common round fruit-trees; a great favourite here on account of its beauty."

TANAGRA PALMARUM (Max.).

Minea (2000 ft.), 9th February, 1879.

RHAMPHOCŒLUS DIMIDIATUS, Lafr.

San Antonio (3450 ft.), 28th August, 1878.

*PYRANGA ÆSTIVA (Gm.).

Pyranga æstiva, Salv. & Godm. Ibis, 1879, p. 200.

Santa Marta, ♀, 27th December, 1878; Minea (2000 ft.), ♀, 16th January, 1879. "Iris brown."

EUCOMETIS CRISTATA (Du Bus).

Arihueca, ♂, 7th March, 1879. "Iris brown. Among the forests of cacao."

Agrees with Venezuelan and Panama examples.

NEMOSIA PILEATA (Bodd.).

Valencia, ♂ ♀, 20th May, 1879. "Iris bright chrome-yellow; feet pale orange-yellow."

A male and female of this widely ranging species, which, however, has not hitherto been noticed so far north.

BUARREMON MELANOCEPHALUS, sp. n.

Suprà fuscus, olivaceo tinctus, pileo toto nigro; alis et caudâ nigricantibus, auricularibus sericeo-griseo-fuscis; subtùs flavicans, plumis pectoris medialiter fusco striolatis, mento et regione malari nigris; rostro nigricante, pedibus corylinis: long. tota 6·3, alæ 2·75, caudæ 2·9, rostri a rictu ·7, tarsi 1·1.

Obs. Avis certè juvenis, sed ab omnibus hujus generis (nisi a *B. tibiali*) pileo nigro dignoscendus; a *B. tibiali* corpore subtùs flavicante diversus.

San Sebastian, ♂, 27th July, 1879. "Iris brown."

Though a young bird, the single specimen sent by Mr. Simons differs so materially from all known members of the genus *Buarremon* that we feel justified in describing it. Its nearest relative seems to be *B. tibialis.*

ARREMON SCHLEGELI, Bp.

Minea (2000 ft.), ♀, 15th and 16th January, 1879. "Iris brown. Flies near the ground amongst brambles."

Agrees with Venezuelan examples.

SALTATOR OLIVASCENS, Cab.

Santa Marta, ♀ 21st December, 1878, ♂ 2nd April, 1879. "Iris brown. Found amongst bushes and trees."

SALTATOR MAGNUS (Gm.).

Minea (2000 ft.), ♂, 30th January, 1879. "Iris yellowish brown."

SALTATOR ALBICOLLIS, Vieill.

Minea (2000 ft.), ♀, 29th January, 1879. "Iris yellowish brown." Ditto, ♀, 8th February, 1879. "Iris whitish grey."

HEDYMELES LUDOVICIANUS (Linn.).

Minea (2000 ft.), ♀, 29th January, 1879. "Iris whitish grey."

SPERMOPHILA PLUMBEA, Max.

Spermophila plumbea, Scl. Ibis, 1871, p. 18.

Santa Marta, ♂, 5th April, 1879. "Iris brown."

A young bird agreeing with Bogota examples referable to this species.

SPERMOPHILA LUCTUOSA, Lafr.

San José, ♀, 9th June, 1879; San Sebastian, ♂ ♀, 29th July 1879. "Iris brown. Common in fields, grass, and low brambles."

*ZONOTRICHIA PILEATA (Bodd.).

Zonotrichia pileata, Salv. & Godm. Ibis, 1879, p. 200.

San Sebastian (6700 ft.), ♂, 27th June, 1878. "Iris colour of reddish brown round neck."

Sierra Nevada de Santa Marta (11,000 ft.), ♂, 30th June, 1878. "Iris dark brown."

San Sebastian, ♂, 25th and 29th July, 1879. "Iris brown. Found feeding on the fruit of cactus, the bill and head-feathers being often stained red in consequence."

PHRYGILUS UNICOLOR (d'Orb. & Lafr.).

Sierra Nevada (from 9200 to 12,800 ft.), 17th to 23rd July, 1878. "Iris dark brown. Hops about swampy places in search of worms."

These specimens agree best with the bird found in the vicinity of Mendoza and in the Pampas of the Argentine Republic. The male is paler clearer grey than the Bogota bird; and there are hardly any traces of dorsal stripes. The species is one of very wide range, showing slight variation in different places.

EMBERNAGRA CONIROSTRIS, Bp.

Santa Marta, ♀, 19th February, 1879. "Iris brown."

SYCALIS FLAVEOLA (Linn.).

Santa Marta, ♂, 2nd April, 1879. "Iris brown."

"Called 'Canario' here; common near houses and in gardens; a very tame bird."

ICTERUS BALTIMORE (Linn.).

Minea (2000 ft.), ♂, 12th February, 1879. "Iris dark brown."

ICTERUS AURICAPILLUS, Cassin.

Santa Marta, ♀, 3rd April, 1879. "Iris brown."

ICTERUS XANTHORNUS (Linn.).

Santa Marta, ♀, 15th December, 1878. "Iris dark brown. Local name 'Toche.' This bird is, after the 'Trupial,' the greatest favourite here, and the best songster, piping every tune taught it. It prefers the hot valleys, among cacti and acacia, to the cool forests. I found five green caterpillars in the gullet of this specimen."

MOLOTHRUS DISCOLOR (Cassin).

Arihueca, ♂, 7th March, 1879. "Iris brown."

*CASSIDIX ORYZIVORA (Linn.).

Cassidix oryzivora, Salv. & Godm. Ibis, 1879, p. 201.

Minea (2000 ft.), ♂, 22nd January, 1879. "Ibis straw-yellow. Local name 'Ilofió.' Frequents the maize-fields in the early morning."

OCHTHŒCA POLIOGASTRA, sp. n.

Suprà brunnea fere unicolor, capitis lateribus dorso concoloribus; alis caudâque nigricantibus, illarum tectricibus lætè cinnamomeo terminatis fasciam alarem formantibus; primariis internè et secundariis extùs fusco limbatis; superciliis albis; subtùs cinerea, abdomine medio vix albicante, pectore lætè rufo; rectricibus utrinque extimis albo marginatis; rostro et pedibus nigris: long. tota 5·3, alæ 2·8, caudæ 2·5, rostri a rictu ·7, tarsi ·8.

Obs. O. lessoni affinis; sed corpore suprà, cum pileo et capitis lateribus, brunnescentiore, subtùs cinerascentiore differt.

Sierra Nevada (9200 to 10,000 ft.), ♂ ♀, 17th to 23rd July, 1879. "Iris dark brown."

Four specimens of this species are in the collection from the Sierra Nevada, all agreeing accurately with one another, and differing from the more southern *O. lessoni* in the points indicated above.

COLOPTERUS PILARIS, Cab.

Minea (2000 ft.), ♂, 14th January, 1879. "Iris white, dying off to brown." ♂, 26th March, 1879. "Iris yellowish white, very prominent."

TYRANNISCUS CHRYSOPS, Scl.

Minea (2000 ft.), ♀, 13th March, 1879. "Iris brown."

Agrees with Ecuadorean examples of this species.

ELAINEA PAGANA (Licht.).

Minea (2000 ft.), ♂, 28th March, 1879. "Iris brown."

Local name "Copeton."

LEGATUS ALBICOLLIS (Vieill.).

Minea (2000 ft.), ♂, 17th March, 1879. "Iris brown."

SUBLEGATUS INCANESCENS (Max.).

Minea (2000 ft.), ♂, 28th March, 1879. "Iris brown."

Agrees with Brazilian skins which we believe to belong to this species as determined by Mr. Lawrence (Ibis, 1876, p. 497). In the form of the bill and nostrils, as well as in the development of the rictal bristles, it agrees with *Sublegatus glaber*, the type of the genus *Sublegatus*; and we therefore place it in that genus.

RHYNCHOCYCLUS FLAVIVENTRIS (Spix).

Santa Marta, ♂, 16th December, 1878. "Iris almost black."

Ariheuca, ♀, 8th March, 1879. "Iris brown. Among small bushes; a loud shrill note betrays its presence. The local name is 'Bovinche.'"

MEGARHYNCHUS PITANGUA (Linn.).

Santa Marta, ♀, 27th December, 1878. "Iris dark brown."

MYIOBIUS VIEILLOTOIDES (Lafr.).

San Sebastian, ♀, 25th July, 1879. "Iris brown."

*PYROCEPHALUS RUBINEUS (Bodd.).

Pyrocephalus rubineus, Salv. & Godm. Ibis, 1879, p. 202.

Valencia, ♂ ♀, 20th and 26th May, 1879. "Iris brown. Local name 'Sangre de toro.'"

CONTOPUS VIRENS (Linn.).

Santa Marta, ♀, 5th April, 1879. "Iris brown. In dense bush."

Agrees fairly with northern specimens.

CONTOPUS BOREALIS (Sw.).

Minca (2000 ft.), ♀, 13th March, 1879. "Iris brown."

MYIARCHUS ERYTHROCERCUS, Scl. & Salv.

Santa Marta, ♀, 30th December, 1878. "Iris brown."

"The local name of this bird is 'Copeton,' from its habit, when perched, of raising its head-feathers in the shape of a crest."

MYIARCHUS TYRANNULUS (Müll.).

Santa Marta, ♂, 14th December, 1878. "Iris brown. The local name is 'Pecho amarillo.'"

MYIARCHUS NIGRICEPS, Scl.

Minca (2000 ft.), ♂, 30th January, 1879. "Iris brown. Local name 'Copeton,' from its habit of sitting with head-feathers raised, like a crest."

Agrees with Mr. Wyatt's specimens from the valley of the Magdalena (Ibis, 1871, p. 333).

TYRANNUS PIPIRI, Vieill.

Santa Marta, ♀, 4th April, 1879. "Iris brown."

TYRANNUS GRISEUS, Vieill.

Santa Marta, ♂, 3rd April, 1879. "Iris yellowish brown."

Red tuft not visible.

Agrees with West-Indian specimens.

[To be continued.]

X.—*Remarks on two recently published Papers on the Ornithology of the Solomon Islands.* By T. Salvadori, C.M.Z.S.

During the year 1879 two papers on the birds of the Solomon Islands have been published; and as I have paid some attention to the ornithology of those islands, which come within the area of the Papuan subregion, I have thought that some remarks on them would not be utterly useless.

One of these papers is by Mr. Ramsay, and was published in the 'Proceedings of the Linnean Society of New South Wales,' vol. iv. pp. 65–84, under the title "Notes on the Zoology of the Solomon Islands, Part i., Aves."

The other paper, by Mr. Tristram, has the title "On a Collection of Birds from the Solomon Islands" (Ibis, 1879, pp. 437–444, pls. xi., xii.).

Mr. Ramsay's paper, read in January last, was first made known in Europe from a preliminary account published in 'Nature,' vol. xx. June 5, 1879, p. 125. But, very strange to say, the two editions do not agree together in several points; and we can only explain this by supposing that Mr. Ramsay, having rather too hastily sent his account to be published in 'Nature,' found afterwards the necessity of making some alterations and corrections in the original paper, read before the New-South-Wales Society in the month of January, but published much later. This would have been of no great consequence if Mr. Ramsay had found it convenient to add some explanatory notes. Thus, for example, in the account in 'Nature,' we find mentioned and shortly described a *Pseudorectes cinnamomeum* (sic), of which there is no mention in the original paper. I supposed that Mr. Ramsay had suppressed this name, having found that it was established on the female of *Pachycephala orioloides*, Peale; but why did he not state that such was the case? Again, in 'Nature' there is described a *Calornis solomonensis*, not mentioned in the original paper, where we have *Calornis cantoroides*, not mentioned in 'Nature,' but which I take to be the same.

Another practice in Mr. Ramsay's paper, to which I think there is great objection, and which certainly Mr. Ramsay ought to have avoided, is that he has *used different names in the two editions for the same supposed new species.* Thus in the original paper we have *Monarcha brodiei,* which in 'Nature' stands as *Monacha barbata*!

A third objectionable practice, which Mr. Ramsay could have easily avoided, is the use of very strange names as if they were Latin, viz. *Myiagra ferrocyanea* (sic), *Rhipidura rufofronta*! And, besides, to call a *Rhipidura* by the name of *rufofronta,* or *rufofrontata,* as in the original paper, can only lead to confusion, as there is the old *Rhipidura rufifrons* (Lath.), well known to all Australian ornithologists.

Forty-five species are mentioned in Mr. Ramsay's paper. For convenience' sake I shall follow Mr. Ramsay's order, which is no order at all, as he has not, to use his own words, "adopted any scientific classification, but has just enumerated the species as they came most conveniently to hand" (*l. c.* p. 94).

ASTUR SOLOENSIS, Lath.; Ramsay, *l. c.* p. 66.

From the description it appears to me that Mr. Ramsay had before him a specimen of my *Urospizias etorques,* and not of true *Tachyspizias soloensis.*

NINOX PUNCTULATA, Quoy et Gaim.; Ramsay, ibid.

This is a Celebes bird; and what Ramsay's specimens can be I know not.

HALCYON CHLORIS, var., Ramsay, *l. c.* p. 67.

I should say that the supposed variety is a specimen of *Halcyon juliæ,* which Mr. Tristram mentions among the birds of the Solomon Islands.

HALCYON LEUCOPYGIA, Verr.; Ramsay, ibid.

Mr. Ramsay describes for the first time the female of this species, till now only known from the single specimen in the British Museum.

EUDYNAMIS TAITENSIS, Sparrm.; Ramsay, *l. c.* p. 70.

I should be rather surprised to find this species among the birds of the Solomon Islands; and I should say that the specimens alluded to require comparison.

"CHALCITES PLAGOSUS, Lath.," Ramsay, ibid.

If the birds mentioned by Mr. Ramsay are like *C. minutillus*, Gould, they cannot be *C. plagosus*, which has the upper part of the head a beautiful coppery red colour.

PACHYCEPHALA ORIOLOIDES, Peale; Ramsay, ibid.

I should call this *Pachycephala astrolabi*, Bp. Consp. i. p. 32. Mr. Ramsay adds the description of the female, which I take to be = *Pseudorectes cinnamomeum* (sic), Ramsay, Nature, xx. p. 125, not mentioned in the original paper.

GRAUCALUS HYPOLEUCUS, Gould; Ramsay, *l. c.*, p. 71.

This is quite new to the Solomon Islands; and I should say that it requires comparison.

GRAUCALUS DUSSUMIERI, Less.; Ramsay, ibid.

This is a species of the Philippines; and I do not think that it can have found its way to the Solomon Islands. Most likely the bird intended is *G. sublineatus*, Sclater, P. Z. S. 1879, p. 448, pl. xxxvi.

GRAUCALUS PUSILLUS, Ramsay, ibid.

This seems to be a good species, allied to *G. axillaris*, Salvad.; but it is very difficult to give an opinion on *Graucali* and Campophagidæ in general without actual examination.

CARPOPHAGA PISTRINARIA, Bp.; Ramsay, *l. c.* p. 72.

Mr. Ramsay remarks that this species comes near *C. vanwycki*. Once I thought that they were the same (Monogr. del sottog. *Globicera*, p. 25); but such is not the case, as Mr. Sclater assures me.

MACROPYGIA, sp., Ramsay, *l. c.* p. 73.

Mr. Ramsay writes to me that he has lately described this species as *M. castanea*.

PTILOPUS VIRIDIS, var., Ramsay, ibid.

Surely this is not the true *P. viridis* from the Amboina group, but most likely a new species.

"CALORNIS CANTOROIDES, Less.," Ramsay, *l. c.* p. 76.

This is no species of Lesson, but of Gray. The Solomon Islands are a new locality for this bird. I have already mentioned above that to it most likely belongs *Calornis salomonensis*, Ramsay, Nature, xx. p. 125, a name altogether left out of Mr. Ramsay's full paper.

DICÆUM ERYTHROTHORAX, H. et J., apud Ramsay, *l. c.* p. 77.

D. erythrothorax is from Bouru. I suppose that the Solomon-Islands bird mentioned by Mr. Ramsay is *D. æneum*, H. et J. Mr. Gray, in the 'Hand-List,' i. p. 145, no. 1427, has wrongly united *D. pectorale*, of New Guinea, with *D. erythrothorax*.

MYIAGRA FERROCYANEA, Ramsay, *l. c.* p. 78.

This bird, so strangely named, is quite unknown to me, and appears to be a good species.

MYIAGRA PALLIDA, Ramsay, ibid.

I feel much inclined to accept Mr. Ramsay's suggestion that this may be the female of the preceding.

MONARCHA RUFOCASTANEA, Ramsay, *l. c.* p. 79.

Mr. Ramsay writes to me that this is *Pomarea castaneiventris* (Verr.). Mr. Tristram also has *P. castaneiventris* from the Solomon Islands. I observe, however, that Mr. Ramsay's dimensions are much smaller than those given by Mr. Sharpe for the type of this species, 'Cat. Birds,' iv. p. 435.

MONARCHA BRODIEI, Ramsay, *l. c.* p. 80.

This seems a good species. It is the same bird as that called *M. barbata*, Ramsay, in 'Nature,' xx. p. 125 !

SAULOPROCTA COCKERELLI, Ramsay, *l. c.* p. 81.

I question whether this is more than an accidental variety of *S. tricolor*.

RHIPIDURA RUFOFRONTATA (!), Ramsay, *l. c.* p. 82.

Rhipidura rufofronta (!), Ramsay, Nature, xx. p. 125.

See my remarks on *R. russata* below.

CINNYRIS (?) DUBIA, Ramsay, *l. c.* p. 83.

Mr. Ramsay is quite doubtful about the right position of this bird, whether it belongs to the Nectariniidæ or to the Meliphagidæ; it is utterly unknown to me.

Mr. Tristram's paper treats of thirty-three species, twelve of which have been described as new. Two of these, *Ceyx gentiana* and *Charmosyna margaritæ*, are splendid gems, quite unknown before. On others, described as new or already known, I have the following remarks :—

COLLOCALIA LINCHI, H. et M.; Tristr. Ibis, 1879, p. 438.

The true *C. linchi* from the Sunda Islands is replaced in the Papuan subregion by *C. esculenta*; so I think that Mr. Tristram's bird requires comparison.

HIRUNDO TAHITICA, Gm.; Tristr. *l. c.* 439.

I doubt whether the bird from the Solomon Islands is really the true *H. tahitica*, which I believe to be confined to the Polynesian subregion. It is more probably the allied form *H. javanica*, Sparrm.; the differences between the two are very small.

MYZOMELA PAMMELÆNA, Sclat.; Tristr. ibid.

It seems to me that the jet-black *Myzomela* mentioned by Mr. Tristram agrees better with *M. nigrita* than with *M. pammelæna*, if they are really distinct. I have seen the type of the latter, and I am rather doubtful about its being different from *M. nigrita*.

PIEZORHYNCHUS VIDUA, Tristr. ibid.

Mostly likely this is =*Monarcha brodiei*, Ramsay, =*M. barbata*, Ramsay (*vide anteà*), although in Mr. Ramsay's description the white uropygium is not mentioned.

MYIAGRA CERVINICAUDA, Tristr. ibid.

This species requires comparison with *M. pallida*, Ramsay (*vide anteà*), which, as already noted, may be the female of *M. ferrocyanea*.

RHIPIDURA RUSSATA, Tristr. *l. c.* p. 440.

This seems the same as *R. rufofrontata* (*vide anteà*); but even in this case Mr. Tristram's name will have to be used in preference to that of *R. rufofrontata*, Ramsay, to avoid confusion with *R. rufifrons* (Lath.).

SYMMORPHUS AFFINIS, Tristr. *l. c.* p. 440.
Unknown to me.

EDOLIOSOMA SALOMONIS, Tristr. ibid.
This requires comparison with *E. remotum,* Sharpe, Mitth. Zool. Mus. Dresd. iii. 3, p. 369, from New Ireland (*Brown*), New Hanover (*Huesker*), and the Duke-of-York Islands (*Brown*).

GRAUCALUS, sp. inc. ♀, Tristr. *l. c.* p. 441.
I think that Mr. Tristram is right in supposing that the female alluded to belongs to *G. sublineatus,* Sclat.

GRAUCALUS MONOTONUS, Tristr. ibid.
I should like to see this bird, which, judging from the description, seems very like *G. papuensis,* although I do not suppose it can be the same.

PACHYCEPHALA CHRYSTOPHORI, Tristr. ibid.
Mr. Tristram, in describing this bird, does not mention any allied species; but from its yellow chin I should say that it comes very near to *P. astrolabi,* Bp., also from the Solomon Islands, with which therefore it may require comparison.

PTILOPUS CERASEIPECTUS, Tristr. *l. c.* p. 442.
I suspect this to be the same as *P. salomonis,* Gray, described from a female specimen, now in the British Museum.

CARPOPHAGA (GLOBICERA) RICHARDSI, Tristr. *l. c.* p. 443.
Certainly the same as my *Carpophaga* (*Globicera*) *rufigula,* Salvad. (Atti R. Ac. Sc. Tor. xiii. p. 536, 1878, et Monogr. sottogen. *Globicera,* p. 14, 1878), the type of which is in the British Museum. Mr. Tristram seems to have overlooked my Monograph.

MACROPYGIA AROSSI, Tristr. ibid.
This very likely = *M. castanea,* Ramsay, mentioned in a letter of this gentleman to me (*vide suprà*).

Turin, Zoological Museum,
December 12th, 1879.

XI.—*Notices of recent Ornithological Publications.*

1. *Anderson's 'Zoology of Yunnan.'*

[Anatomical and Zoological Researches: comprising an account of the zoological results of the two expeditions to Western Yunnan in 1868 and 1875; and a Monograph of the two Cetacean Genera *Platanista* and *Orcella*. By John Anderson, M.D. Edin. 2 vols. 4to: London, 1878.]

In these volumes we have an account of the zoological collections made during the two expeditions sent by the Indian Government into Western Yunnan in 1867 and 1875, with the view of opening up trade between British Burmah and the interior of China. Dr. Anderson accompanied both of them as Naturalist, and with the assistance of several fellow-workers has prepared the present work. The portion relating to the Birds, in which Mr. R. Bowdler Sharpe has "carefully worked out the literature," contains a "list of the species collected on the two expeditions." They are 233 in number. The only new species described appears to be *Arachnechthra edeni* (p. 661), the other novelties discovered having been previously characterized in the Zoological Society's 'Proceedings.' Of the letterpress we must say that a most inordinate proportion is taken up by synonyms, whole pages being devoted to the most ordinary references to such common species as *Charadrius fulvus* and *Scolopax gallinago*.

The species figured are:—

Circus melanoleucus, ♂.
„ „ ♀ & young.
Pteruthius æralatus.
Chleuasicus ruficeps.
Chatarrhœa gularis.
Alcippe phayrei.
Arachnechthra edeni.
Suthora brunnea.
Hypsipetes yunnanensis.
Culcipeta tephrocephala.
Suya superciliaris.
Pycnonotus xanthorrhous.
Phasianus sladeni.
Euplocamus andersoni.
Bambusicola fytchii.

2. *Brewer on the North-American* Empidonaces.

[Notes on the Nests and Eggs of the eight North-American Species of *Empidonaces*. By T. M. Brewer. Proc. U.S. Nat. Mus. 1879.]

Dr. Brewer bases these valuable notes mainly upon specimens in the Smithsonian and his own collections. Three species of the genus *Empidonax* lay white eggs (*E. minimus, E. obscurus,* and *E. hammondi*); the others have strongly marked eggs, except *E. flaviventris,* in which case it seems that eggs of both forms occur.

3. *Dubois on Additions to the Avifauna of Belgium.*

[Remarques sur la Faune de Belgique, par M. Alph. Dubois. Bull. Acad. R. Belgique, 2me sér., xlvi. no. 6 (1879).]

Records the occurrence of *Turdus sibiricus, Petrocincla cyanus,* and *Emberiza pusilla* in Belgium.

4. *Dubois on two new Birds.*

[Descriptions d'Oiseaux Nouveaux, par M. Alph. Dubois. Bull. Acad. R. Belgique, 2me sér., xlvii. no. 6 (1879).]

The species described are *Hypoxanthus æquatorialis,* which is the Ecuadorian form of *H. rivolii* (distinguishable by its black rump and smaller bill), and *Euplocamus sumatranus* said to be from Sumatra. But the Sumatran *Euplocami* which we have examined are certainly referable to *E. vieilloti.*

5. *Elliot's Monograph of the Hornbills.*

[A Monograph of the Bucerotidæ, or family of the Hornbills. By D. G. Elliot, F.R.S.E. &c. Part VI. Small folio: 1878. Published by the author.]

Mr. Elliot has issued the sixth number of his 'Monograph of the Hornbills' since we last mentioned this work. We trust he will bring this useful but somewhat lingering piece of work to a speedy conclusion.

Part vi. contains illustrations of the following species:—

Bucorvus pyrrhops.
Ceratogymna elata.
Hydrocissa exarata.
Anthracoceros fraterculus.
Rhytidoceros subruficollis.
Tockus erythrorhynchus.

6. *Godman and Salvin's 'Biologia Centrali-Americana.'*

[Biologia Centrali-Americana; or Contributions to the Knowledge of the Fauna and Flora of Mexico and Central America. Edited by F. Ducane Godman and Osbert Salvin. (Zoology.) Parts I. & II. 4to: London, 1879. Published for the Editors by R. H. Porter, 10 Chandos Street, Cavendish Square, W.]

The first zoological part of this work was issued in September last, and the second in November. Of the "Aves" we have herein pp. 1–56, containing the Passeres as far as the Paridæ, according to the arrangement in the 'Nomenclator.' Every species is described in a Latin diagnosis. *Catharus alticola,* from the Volcan de Fuego, Guatemala, is described as new. The following species are figured:—

Catharus gracilirostris.
„ griseiceps.
„ mexicanus.
„ dryas.
Turdus flavirostris.
Melanoptila glabrirostris.
Turdus nigrescens.

7. *Gould on a new Bower-bird.*

[Observations on the *Chlamydoderæ* or Bower-birds, with Description of a new Species. By John Gould, F.R.S. Ann. & Mag. N. H. ser. 5, vol. iv. p. 73.]

Chlamydodera orientalis, sp. nov., from Queensland, is the eastern form of *C. nuchalis,* from which it differs in the "barring of the upper plumage almost approaching to that of *C. maculata* and *C. guttata.*"

8. *Gould's 'Birds of New Guinea.'*

[The Birds of New Guinea and adjacent Papuan Islands, including any new species that may be discovered in Australia. By John Gould, F.R.S. &c. Part X. Folio: London, 1879. Published by the author, 26 Charlotte Street, Bedford Square, W.C.]

Mr. Gould's tenth part contains, as usual, many most interesting illustrations, amongst which we may call special attention to that of the rare Tooth-billed Bower-bird (*Scenopœus dentirostris*), one of the most remarkable of the recent additions to the Australian avifauna.

The species figured in part x. are:—

Aprosmictus callopterus.
Cyclopsitta cervicalis.
Paradisea papuana.
Scenopœus dentirostris.
Chlamydodera occipitalis.
Pitta forsteni.
Myzomela rosenbergi.
Arses telescophthalmus.
„ batantæ.
„ aruensis.
Heteromyias cinereifrons.
Pœcilodryas placens.

9. *Gould's 'Birds of Asia.'*

[The Birds of Asia. By J. Gould, F.R.S. &c. Dedicated to the Honourable East-India Company. Part XXXI. Folio: London, 1879. Published by the author, 26 Charlotte Street, Bedford Square, W.C.]

Of Mr. Gould's 'Birds of Asia' (commenced in 1850) we have now the thirty-first part before us, containing figures of the following species:—

Oriolus broderipi.
Pitta ellioti.
  ,, granatina.
  ,, coccinea.
Tetrao mlokosiewiczi.
Hæmatortyx sanguiniceps.
Bambusicola hyperythra.
Calliope camtschatkensis.
  ,, pectoralis.
  ,, tschebaiewi.
Urocynchramus pylzowi.
Carpodacus roseus.
Prionochilus vincens.

Hæmatortyx and *Urocynchramus* are both novelties of great interest, of which we are glad to see good figures. We observe that Mr. Gould has omitted to quote Sclater's description and figure of *Prionochilus vincens*, given in this Journal for 1874 (p. 1, pl. i.).

10. *Hartlaub on a new Quail.*

[Ueber eine neue Wachtel von der Duke-of-York Gruppe. Von Dr. G. Hartlaub. Sitzungsb. d. Verein für naturwissensch. Unterhaltung: Hamburg, 1879.]

Excalfactoria lepida (=*E. sinensis*, Scl. P. Z. S. 1879, p. 447) is based on four specimens obtained by Hr. Th. Kleinsmidt on Mioko, one of the Duke-of-York group, in May 1879. It is stated to differ from *E. sinensis* in its larger stature, different coloration beneath, and in other particulars.

11. *Lawrence on West-Indian Birds.*

[A General Catalogue of the Birds noted from the Islands of the Lesser Antilles visited by Mr. Fred. A. Ober; with a Table showing their Distribution, and those found in the United States. By George N. Lawrence. Proc. U.S. Nat. Mus. i. p. 486.]

This is a most convenient Index to Mr. Lawrence's excellent reports on the birds collected by Mr. Ober in the islands of Barbuda, Antigua, Guadeloupe, Dominica, Martinique, St. Vincent, and Grenada.

12. *Legge's 'Birds of Ceylon.'*

[A History of the Birds of Ceylon. By Captain Vincent Legge, R.A. Part II. 4to: London, 1879. Published by the author.]

Capt. Vincent Legge's 'Birds of Ceylon' makes good progress. In the bulky part issued in September last we have an account of the whole of the Passeres and Columbæ, together with illustrations of the following species:—

Spizaetus ceylonensis.
Brachypternis puncticollis.
„ ceylonus.
Centropus chlororhynchus.
Cissa ornata.
Buchanga leucopygialis.
Dissemurus paradiseus.
„ lophorhinus.
Alseonax muttui.
Hypothymis ceylonensis.
Stoparola sordida.
Oreocincla imbricata.
Turdus spilopterus.
Kelaartia penicillata.
Malacocercus rufescens.
Pomatorhinus melanurus.
Garrulax cinereifrons.

13. *Milne-Edwards and Grandidier's 'Madagascar.'*

[Histoire Physique, Naturelle et Politique de Madagascar. Publiée par Alfred Grandidier. Vol. XII.—Histoire Naturelle des Oiseaux. Par MM. Alph. Milne-Edwards et Alf. Grandidier. Tome I., Text, i. 1re partie. Vol. XIII.—Histoire Naturelle des Oiseaux. Tome II., Atlas, i. 2e partie. Vol. XIV.—Histoire Naturelle des Oiseaux. Tome III. Atlas, ii. 1re partie. 4to: Paris, 1878-79. Imprimerie Nationale.]

We have now before us the first portion of the letterpress relating to the Birds of this great undertaking, of which we chronicled the commencement in 1878 (Ibis, 1878, p. 189). It contains M. Grandidier's account of the Parrots, Birds of Prey (diurnal and nocturnal), and *Cuculidæ* of Madagascar, with very copious details on their anatomy by M. Alphonse Milne-Edwards. We have also two parts of the accompanying Atlas of plates, in which the coloured plates are drawn by Mr. Keulemans and well coloured. They represent the following species:—

Atlas, pt. 1. vol. i.

Astur henstii, juv.
Heliodilus soumagnei.
Cypselus parvus.
Chætura grandidieri.
Ispidina madagascariensis.
Merops superciliosus.
Corythornis cristatus.
Upupa marginata.

Collocalia francica.
Caprimulgus madagascariensis.
,, enarratus.
Leptosomus discolor ♂.
,, ,, ♀ & juv.
Brachypteracias leptosomus.
,, squamigera.
,, crossleyi.
,, pittoides.

Atlas, pt. 2. vol. i.

Nectarinia souimanga.
,, notata.
Neodrepanis coruscans.
Philepitta castanea ♀.
,, schlegelii ♀.
,, castanea ♂.
,, schlegelii ♂.
Eroessa tenella.
Zosterops madagascariensis.
Hartlaubius madagascariensis.
Falculia palliata.
Hypherpes corallirostris.
Mystacornis crossleyi.
Bernieria madagascariensis.
,, zosterops.
Oxylabes madagascariensis.
,, xanthophrys.
Ellisia madagascariensis typica.
,, ,, , var. filicum.
,, ,, , var. lantzii.
Thamnornis chloropetoïdes.
Cisticola madagascariensis.
Dromæocercus brunneus.
Calamodyta newtonii.
Pratincola torquata.
Motacilla flaviventris.
Copsychus albospecularis typicus.
,, ,, , var. pica.
Cossypha imerina.
,, sharpei.
Hypsipetes madagascariensis.
Tylas eduardi.
,, madagascariensis.

It is quite evident that when this work is complete we shall have a better account of the avifauna of Madagascar than of that of many much longer-known parts of the world's surface. But the Madagascarian ornis is of so strange a character that it well merits all the attention that can be paid to it.

14. *'Philosophical Transactions,' Vol.* 168 (*Natural History of the Transit Expeditions*).

[An Account of the Petrological, Botanical, and Zoological Collections made in Kerguelen's Land and Rodriguez during the Transit-of-Venus Expeditions carried out by order of Her Majesty's Government in the years 1874–75. (Phil. Trans. 168, extra volume.) London, 1879.

Of Mr. Sharpe's ornithological contributions to the present volume, which were issued in advance of the complete work, we have already spoken (see Ibis, 1877, p. 479, and 1879, p. 216). But besides these, we find in the complete work, now issued as the 168th volume of the 'Transactions of the

Royal Society,' two essays relating to our branch of zoology—a memoir by Dr. Günther and Mr. E. Newton on the extinct birds of Rodriguez, and one by Mr. E. Newton and Mr. J. W. Clark on the osteology of the Solitaire. As regards the first of these, the most interesting new point is, perhaps, the discovery by Mr. Slater's labours of an extinct Starling in Rodriguez (*Necropsar rodericanus*), allied to the *Fregilupus* of Réunion. The memoir on the Solitaire is also worthy of careful study. After a thorough examination of the very extensive materials submitted to them, the authors have come to the conclusion that "there does not seem to be a single bone in the skeleton of *Pezophaps solitaria* which is not liable to greater or less individual variation of some kind or other," not only as regards absolute size, but also as regards the relative proportions of the different parts.

15. *Radakoff on the Birds of the Lower Danube and Pruth.*

[Ornithologische Bemerkungen über Bessarabien, Moldau, Walachei, Bulgarien und Ost-Rumelien. Von W. N. Radakoff. Bull. Soc. Imp. d. Nat. d. Moscou, 1879, no. 1, p. 150.]

A series of short notes on 203 birds observed during the author's company with the Russian armies in the campaign of 1876. "*Aquila clanga*" is stated to be "überall sesshaft."

16. *Ramsay on the Zoology of the Solomon Islands.*

[Notes on the Zoology of the Solomon Islands. By E. P. Ramsay, F.L.S. &c. Proc. Linn. Soc. N. S. W. iv. p. 65.]

In this paper (an abstract of which was published in 'Nature' of June last) Mr. Ramsay gives an account of a collection, containing 50 examples of Mammals and 350 of Birds, made by Mr. J. Cockerell at three "stations" on the Solomon Islands, in company with Capt. Brodie of the schooner 'Ariel.' The localities mentioned are Guadalcanar Island, Cape Pitt, and Savo. Cape Pitt, we find, is on the Island of Georgia; but it would have been better if Mr. Ramsay had been a little more definite about his localities. The new species described are:—

Graucalus pusillus.
Myiagra ferrocyanea.
,, pallida.
Monarcha rufocastanea.
Monarcha brodiei.
Sauloprocta cockerelli.
Rhipidura rubrofrontata.
Cinnyris (?) dubia.

All these are from Gualdacanar, except the last, which is from Savo. Besides these, the collection contains examples of *Lorius cardinalis, Carpophaga rufigula,* and of the Megapode of Savo, called *Megapodius brenchleyi* by G. R. Gray, from the egg. Taking this paper in connexion with that of Mr. Tristram in our last number, it seems certain that the Solomon Islands possess a very rich avifauna, and that each island is well worthy of special investigation.

In reference to this paper, see also Count Salvadori's article *suprà,* p. 126.

17. *Ramsay on the Zoology of New Guinea.*

[Contributions to the Zoology of New Guinea. Parts IV. & V.—Remarks on recent Collections made by Mr. Andrew Goldie in the South-east portion of New Guinea and the Louisiades. By Ed. P. Ramsay, F.L.S. &c. Proc. Linn. Soc. N. S. W. iv. p. 85.]

Contains an account of a third collection, made at Port Moresby and in its vicinity, by Mr. Goldie. The species not previously recorded are numbered continuously from Mr. Ramsay's last paper on the same subject (Proc. Linn. Soc. N. S.W. ii. p. 14), whereby it appears that the total number of species as yet obtained from this locality is 220. Mr. Ramsay adds some general remarks on the avifauna, and a table showing the distribution of the species.

18. *Reinhardt on the ornamental Wing-feathers of the King Eider and Mandarin Duck.*

[Vingeprydelserne hos Konge-Ederfuglen og Mandarin-Anden. Af J. Reinhardt. Vid. Meddel. fra d. naturh. Foren. i. Kbhvn. 1879–80.]

Prof. Reinhardt corrects J. C. H. Fischer's recently published account of the two peculiar feathers of the scapulars of the King Eider (*Somateria spectabilis*), and points out that they have been previously described by Nilsson, Sundevall, and others. These feathers occur in other *Somateriæ,* but not in *Heniconetta stelleri.* The apparently corresponding feathers in the Mandarin Duck are differently constituted.

19. *Salvadori on the Birds of the Kei Islands.*

[Catalogo degli Uccelli delle Isole Kei. Per Tommaso Salvadori. Ann. Mus. Genov. xiv. p. 628.]

In this memoir our indefatigable fellow-worker gives us a complete catalogue of the birds hitherto ascertained to occur in the Kei Islands (Ké Islands of Wallace), south of New Guinea, and prefaces it with some interesting conclusions as to the alliances of their avifauna, which, as shown by the existence of *Nasiterna* and *Polophilus*, is rather Papuan than Moluccan, as supposed by Wallace. The total number of birds now known from the Kei Islands is 82, of which 12 are peculiar to the group.

20. *Schlegel on* Nisus rufitorques *and* N. poliocephalus.

[On *Nisus rufitorques* and *N. poliocephalus.* By H. Schlegel. Notes Leyden Mus. no. i. p. 1 (1878).]

A series of remarks on these two species and their distribution, and on what Prof. Schlegel regards as their local varieties.

21. *Schlegel on* Strix inexpectata.

[On *Strix inexpectata.* By H. Schlegel. Notes Leyd. Mus. no. xviii. p. 50 (1878).]

Describes this species from Northern Celebes. It is a large typical *Strix*, allied to *S. rosenbergi.*

22. *Schlegel on a new Cuckoo.*

[On a new Species of Cuckoo from Madagascar. By H. Schlegel. Notes Leyd. Mus. no. xxiv. p. 99 (1879).]

The new species is *C. audeberti,* allied to *C. sparverioides* of India, based on a single female specimen obtained by M. Audebert in June 1878, near Mananare, on the south-western shore of the bay of Antongil.

23. *Schlegel on* Strix tenebricosa arfaki.

[On *Strix tenebricosa arfaki.* By H. Schlegel. Notes Leyd. Mus. no. xxv. p. 101 (1879).]

Under this name Prof. Schlegel describes the "representant of *Strix tenebricosa*" in New Guinea. The type is from Hattam.

24. *Schlegel on a new Treron.*

[On a new Species of Treron from the island of Sumba (Sandelwood). By H. Schlegel. Notes Leyd. Mus. no. xxvi. p. 103 (1879).]

The species is called after its discoverer, Mr. Teysmann, *T. teysmanni*. It is most nearly allied to *T. psittacea* and *T. floris*.

25. *Schlegel on* Artamia bernieri.

[On *Artamia bernieri*. By H. Schlegel. Notes Leyd. Mus. no. xxviii. p. 111 (1879).]

Describes the adult male of this species (of a uniform glossy black), from examples procured by Mr. Audebert in N.E. Madagascar.

26. *Schlegel on a new Heron.*

[On an undescribed Species of *Ardea*. By H. Schlegel. Notes Leyd. Mus. no. xxix. p. 113 (1879).]

Ardea lansbergii is a new "Semi-egret" from Macassar, Southern Celebes, and is allied to *A. gularis* and *A. jugularis*.

27. *Schlegel on* Hypherpes corallirostris.

[On *Hypherpes corallirostris*, Newton. By H. Schlegel. Notes Leyd. Mus. no. xxx. p. 115.]

Points out the differences in the sexes of this form, and describes the male.

28. *Schlegel on* Talegallus pyrrhopygius.

[On *Talegallus pyrrhopygius*. By H. Schlegel. Notes Leyd. Mus. no. xxxix. p. 159 (1879).]

Established on a skin recently obtained at one of the mission-stations on the eastern coast of the N.W. peninsula of New Guinea. The species is distinguished from *T. cuvieri* by its chestnut upper tail-coverts, and other differences.

29. *Schlegel on* Gallinula frankii.

[On *Gallinula frankii.* By H. Schlegel. Notes Leyd. Mus. no. xl. p. 163 (1879).]

Gallinula frankii is a name given to the southern form of *Amaurornis olivacea* of the Philippines. But this form has already been named *Porzana moluccana* by Wallace, and should stand as *Amaurornis moluccana* (cf. Salvadori, Atti Acad. Sc. Tor. xiv., and Sclater, P. Z. S. 1879, p. 451).

30. *Sclater's 'Jacamars and Puff-Birds.'*

[A Monograph of the Jacamars and Puff-Birds, or Families *Galbulidæ* and *Bucconidæ.* By P. L. Sclater, M.A., Ph.D., F.R.S., &c. Part I. 4to: London, 1879. Published for the author by R. H. Porter, 6 Tenterden Street, W.]

The first part of this Monograph was issued in October last. It contains illustrations of the following species, and the accompanying letterpress:—

Urogalba paradisea.
„ amazonum.
Galbula viridis.
„ rufo-viridis.
„ ruficauda.
Galbula melanogenia.
„ tombacea.
„ albirostris.
„ cyaneicollis.

31. *Shelley's Monograph of the Sun-birds.*

[A Monograph of the *Cinnyridæ*, or Family of Sun-Birds. By Captain G. E. Shelley, F.Z.S., F.R.G.S., &c. Parts II.–X. 4to: London. Published by the Author, at the Office of the British Ornithologists' Union, 6 Tenderden Street, Hanover Square, W.]

We owe apologies to Capt. Shelley for not having recently chronicled the progress of his excellent Monograph of the Sun-birds, the parts of which have been issued during the past two years with praiseworthy regularity.

We have now before us ten parts of Capt. Shelley's work. As twelve parts were the limit originally assigned, although we are now told that one or two additional parts will be required for recent additions to the group, we trust that it may shortly be brought to a conclusion, when it will form a worthy companion to the well-known monographs of Sharpe and the Marshalls.

32. *Taczanowski on the Red-tailed Shrikes of Central Asia.*

[Quelques mots sur les Pie-grièches à queue rousse de l'Asie Centrale. Par M. L. Taczanowski. Bull. Soc. Zool. France, 1878, p. 36.]

After criticising M. Vian's paper on this subject (Bull. Soc. Zool. 1877, p. 208), M. Taczanowski propounds his own views on the vexed question of the *Lanius phœnicurus* of Pallas, and describes at full length the four forms found in Northern Asia, which are, according to his opinion, (1) *Otomela cristata* (Linn.), of E. Siberia, (2) *O. phœnicuroides* (Severtz.), of Turkestan, (3) *O. speculigera*, Tacz., of Southern Daouria, and (4) *O. isabellina* (Ehr.), of Turkestan.

XII.—*Letters, Announcements, &c.*

We have received the following letters addressed to the Editors of 'The Ibis:'—

74 Jermyn St., London, S.W.
November 20, 1879.

Sirs,—I visited the Zoological Garden at Antwerp towards the beginning of last September, and carefully examined the Eagle on which, without having seen it, Dr. Bree founded his supposed new species, *Aquila culleni*. I found the bird alone in a large cage, and labelled "*Aquila culleni*, Bree." It was very tame, in beautiful plumage, and very clean and healthy-looking. It does not now much resemble the figure in Dr. Bree's 'Birds of Europe,' second edition, vol. i. p. 89, as it is much darker and more fulvous in colour than there represented, and the tarsus is, of course, feathered down to the toes, as in all true Eagles, and not bare, as it is erroneously figured in that plate. In colour the bird much resembles an immature Spanish Imperial Eagle (*Aquila adalberti*) the plumage of the underparts being of a bright fulvous colour. This Eagle has quite got over that "silence in confinement" on which Dr. Bree so much relies as a specific character; for it kept up an incessant croaking during the whole time I was looking at it; indeed I think I never met with so noisy an Eagle. I am most decidedly of opinion that it is a very fine example of *Aquila rapax,* Temm., otherwise called *Aquila nævioides;* and in size I do not think it exceeds several others of that species that I have seen.

Yours &c.,
E. Cavendish Taylor.

November 11, 1879.

Sirs,—In 'The Ibis' for 1875, at p. 518, I recorded the fact that Mr. Edward Fountaine, of Eastern Norfolk, possessed two young Snowy Owls (*Nyctea scandiaca*) bred in his aviary in July of that year.

These young birds are still alive, and are a male and female; the latter is paired with another male, and laid eggs during the present summer; but they did not prove fertile.

It is interesting to compare the difference of plumage in a male and female of this species, which are thus known to be of precisely the same age within three days. I visited Mr. Fountaine's collection on 11th October 1879, and particularly observed these two Owls, which are both in excellent health and plumage.

The dark spots both on the upper and under surface are much less numerous in the male than in the female, and are also smaller. The spots in the female are slaty black; but in the male they are paler and much tinged with brown, especially on the underparts.

In the female, the spots on the tail form three perfect transverse rows besides a small imperfect portion of a fourth row; while in the male there is but one such row, formed by a single spot on each rectrice.

I am, &c.,
J. H. Gurney.

Sirs,—In the second part of Capt. Legge's beautiful work on the Birds of Ceylon, p. 579, note, Lesson's *Prionochilus pipra* (Cent. of Zool. pl. 26) is mentioned as an unknown bird. The author goes so far as to suggest that it may be a *made-up* bird. I should have thought that by this time it would be known that it is a very common South-American bird of the genus *Iodopleura*.

Yours &c.
T. Salvadori.

News of Major St. John.—Major St. John, whose appointment to the new Consulate of Astrabad we alluded to in our last number, is still with the Candahar division of the English army in Afghanistan, but hopes to be able to proceed (*viâ* Herat) to Astrabad before long. He writes to us as follows:—

"Afghanistan, as you may suppose, is not just now the country that the peaceful collector would choose for his rambles; but I have done pretty well in the bird-line. Mr. A. O. Hume lent me a skinner; and I have sent him my birds for identification. The fauna is very like that of Persia, the common lizards being identical, viz. *Agama agilis*, *Mesalina pardalis*, *Eremias persica*, and *Stellio nuptus*. All the mammals are Persian except the new Marten of Blanford, and *Putorius sarmaticus*. Among the birds there are few Indian species not found in Persia, *e.g. Hirundo filifera*, *Corvus lawrencii*, *Milvus govinda*, *Myiophonus temminckii*, *Parus cæsius*, and *Turtur senegalensis*. *Passer montanus* is almost commoner than *P. domesticus* (sive *indicus*), which is the case, I believe, in the Malay countries, a very different climate. In Persia it is rare. I have got a fine series of Wagtails, six species, I think.

Pastor roseus is a bird of passage in spring and autumn, and must, I think, breed in the highlands of Afghanistan. Altogether this part of the country is a poor place to collect in, much more so than Persia. There is no shooting or fishing.

New East-African Birds.—In number 20 of the 'Ornithologisches Centralblatt' (Oct. 15, 1879) Dr. Reichenow published the characters of three new birds contained in Dr. G. A. Fischer's collection from Eastern Africa, *Spilocorydon* (genus novum Alaudidarum) *hypermetrus*, *Alauda pœcilosterna*, and *Turdirostris leptorhyncha*. In number 23 (p. 180) we find mentioned a new Touraco, *Corythaix schüttii*, from South-west Africa, described by Dr. Cabanis. In number 24 of the same Journal, L. Stejneger, of Bergen, describes a new bird from Madagascar (*Tylas strophiatus*), for the validity of which Dr. Hartlaub appends a certificate.

New Indian Finch.—In the 'Gefiederte Welt,' no. 44 (30 Oct. 1870), Dr. Russ describes a new Finch belonging to the group of *Spermestes striata*, under the name *Spermestes haldi*. The type is a single living bird, purchased at Hamburg, from the East Indies.

Obituary.—Prof. GARROD, F.R.S. The premature death of Professor Alfred Henry Garrod, F.R.S., Prosector to the Zoological Society of London and Member of this Union, is not only a cause of unfeigned grief to his many friends, but a great loss to science, and one of special importance to our branch of zoology. The subject which Prof. Garrod had specially selected for his study was the Anatomy of Birds—a branch of ornithology which, as we all know, is far in arrear, and is one in which much less work has been done, even of late years, than in other easier branches of our science. Of 68 papers contributed by Prof. Garrod to the Zoological Society's 'Proceedings' during the past eight years, no less than 38 related to the anatomy and osteology of birds. It is also well known that Prof. Garrod had in preparation what he described in his own words as an "exhaustive treatise" on the anatomy of birds; and there can be no question that, had his life been spared, he would have accomplished the task he had set himself in a most satisfactory manner. It must be many years before any succeeding naturalist, even though he shall enjoy the advantages Prof. Garrod had, of brilliant genius and of access to the richest known collection of living birds, can hope to attain to the stage of knowledge of this difficult subject that our lamented friend possessed at the time of his death.

Prof. Garrod died at his father's house, in Harley Street, on the 17th of October last. We reprint (with the sanction of the writer), from the pages of 'Nature,' the following short sketch of his life and scientific career :—

"The son of an eminent physician (Dr. Alfred Baring Garrod, F.R.S.), he was born in London on May 18, 1846, received a medical education at King's College, London, and in 1868 entered St. John's College, Cambridge. He graduated (B.A.) in 1871, taking the highest place in the natural-science tripos. In due course he took his M.A. degree, and was elected a Fellow of his college in 1873. His earliest scientific predilections were chiefly for mathematics and physics; and the knowledge of these subjects which he acquired when a student was of great value to him in his biological researches. The mechanics of physiology was the subject to which he first turned his attention as a scientific investigator; and while still an undergraduate he communicated a paper on the cause of the diastole of the ventricles of the heart to the 'Journal of Anatomy' (vol. iii. 1869). About the same time he sent to the Royal Society the results of an interesting series of experiments made upon himself with the view of ascertaining the causes of the minor fluctuations in the temperature of the human body while at rest, from which he concluded that these fluctuations mainly result from alterations in the amount of blood exposed at the surface to the influence of absorbing and conducting media. These were published in the 'Proceedings of the Royal Society,' vol. xvii. (1869). A series of papers in the 'Proceedings of the Royal Society' and in the 'Journal of Anatomy' followed, giving the result of observations upon the circulation of the blood, conducted with great ingenuity by means of the sphygmograph, aided by various modifications and improvements upon the original instrument due to his inventive and mechanical skill. It is, indeed, probable that physiology is the subject to which he would most willingly have devoted his attention, had not his energies been turned to the pursuit of morphology by his receiving the appointment, in January 1872, of Prosector to the Zoological Society. This appointment is one which, perhaps more than any now existing, comes near to an ideal endowment of research. An unlimited amount of new material is placed in the hands of its occupant; there are no duties beyond those of making and recording original observations; and ample facilities are given for the publication and illustration of all the observations made. To the efficient performance of the duties of this office Mr. Garrod applied himself with great energy and zeal, as testified by his numerous contributions upon the comparative anatomy of the vertebrate animals, which have enriched the publications of the Society from the date of his appointment to the present time. He devoted great attention to the anatomy of birds, hitherto too much neglected; and his observations upon their myology and visceral anatomy were beginning to throw some light upon the very difficult and obscure subject of the mutual affinities of the members of this class. The curious and most unexpected variations in structure often revealed in the dissection of species thought to be closely allied, soon convinced him of the necessity of far more extended and minute observations than had previously been made; and those who closely watched his work, and knew that, besides the observations he had had time to complete and publish, he had already accumulated a vast mass of facts, partly in notes and drawings, and partly in the stores of his memory, feel most keenly how much has been lost by his early death.

"His eagerness in acquiring knowledge was only equalled by his activity in imparting it to others; and he had a remarkably easy and lucid method of explaining, even to an uninstructed audience, difficult problems of physiology or anatomy. With the black board, or some ingeniously contrived diagram or mechanical illustration, he was never at a loss to make his hearers comprehend his meaning. These great and varied powers probably tempted him to overtask his strength. Not content with his work at the Zoological Society, he sought for and obtained the Professorship of Zoology and Comparative Anatomy at King's College in

1874, and the Fullerian Professorship of Physiology at the Royal Institution in 1875. He was also appointed one of the Examiners in the Natural-Science Tripos in 1876, and was for several years a constant contributor to 'Nature.' In 1876, when he had just completed his thirtieth year, he as elected a Fellow of the Royal Society.

"In the simple and single-hearted devotion to the sciences he cultivated he was without a particle of jealousy or mistrust of others, but was always anxious to assist those who were working in the same direction; and his room at the Zoological Gardens was gradually becoming the profitable resort of many of the younger workers at comparative anatomy, who were encouraged in their labours by his advice and example.

"Up to little more than a year ago he was apparently in the enjoyment of vigorous health; but symptoms of the insidious disease (phthisis) which terminated his existence, then for the first time showed themselves. Through the gradual decline of his powers, and amid considerable suffering, borne with the greatest patience and calmness, he continued to the last to spend all his remaining strength in making the knowledge which he had acquired available for the instruction of those that should come after."

The following is, we believe, a complete list of Mr. Garrod's ornithological papers:—

1872.

On the Mechanism of the Gizzard in Birds. P. Z. S. 1872, p. 525.

Notes on the Anatomy of the Huia Bird (*Heteralocha gouldi*). P. Z. S. 1872, p. 643.

Note on the Tongue of the Psittacine genus *Nestor*. P. Z. S. 1872, p. 787.

Note on an Ostrich lately living in the Society's Collection. By A. H. Garrod and Frank Darwin, B.A. P. Z. S. 1872, p. 356.

Note on some of the Cranial Peculiarities of the Woodpeckers. Ibis, 1872, p. 357.

1873.

On the Value in Classification of a Peculiarity in the Anterior Margin of the Nasal Bones of certain Birds. P. Z. S. 1873, p. 33.

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1879.

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On the Conformation of the Thoracic Extremity of the Trachea in the Class Aves.—Part I. The Gallinæ. P. Z. S. 1879, p. 354.

Rediscovery of Loddigesia mirabilis.—We have great pleaaure in announcing that Hr. Stoltzmann, the collector of the Warsaw Museum in Peru, has obtained specimens of the remarkable Humming-bird *Loddigesia mirabilis*, of which the original specimen has hitherto remained unique. The *Loddigesia* was discovered by the botanical collector Matthews at Chachapoyas, in Peru, in 1836, and described by M. Bourcier before the Zoological Society in 1847. None of the many subsequent collectors who have visited Peru have obtained specimens. Hr. Stoltzmann, having had his attention directed to the rarity of this bird by Graf v. Berlepsch, determined to proceed to Chachapoyas in order to obtain this desideratum, and arrived there in September last. Writing on the 28th of that month, he tells us that on the very first excursion which he made in the environs of Chachapoyas, five days after his arrival, he saw a young male of the much-desired *Loddigesia*, without, however being able to procure it. Two days later he proceeded to the same spot, and, after waiting in anxious expectation about two hours, succeeded in killing a young male with the plumage about half developed. In his next excursion he procured a second young male, and on the 19th of September an adult male, with the two singular spatuliform rectrices fully developed. Hr. Stoltzmann met with this Humming-bird within a distance of three kilometres from the city of Chachapoyas. He has ascertained that the original example, belonging to the late Mr. Loddiges, was shot at Quipachacha, about three leagues from Chachapoyas.

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XIII.—*Ornithological Notes from the Neighbourhood of Cape San Antonio, Buenos Ayres.* By Ernest Gibson, F.Z.S.

[Continued from p. 38.]

39. Ciconia maguari, Gm. The "Cigueña" of the natives.

Very common, and not confined entirely to the swamps. It is to be found on the plains, at offal, or stalking about in search of snakes, frogs, lizards, rats and mice, locusts, and birds' eggs—any thing and every thing, in short. Except in the pairing-season, it is solitary in its habits. To the way it soars, particularly in summer-time, I have already alluded; I have seen probably a score at a time, all rising in spiral circles.

The young croak and clatter the two mandibles together; but the adult is quite mute. They (the young) are quite black at birth, and only acquire the adult plumage after the lapse of six or eight months. One, which I took on the 5th October, was about the size of a domestic fowl, in down, and, with the exception of a white tail, entirely black. It soon became very tame, and used to wander all over the premises, looking for food, or watching any work that was going on. Rats were swallowed whole; and the way it would gulp down a pound or two of raw meat would have horrified an English housekeeper. Snakes it seized by the nape of the neck, and passed them transversely through its bill by a succession of rapid and powerful nips, repeating the operation two or three times before being satisfied that life was totally extinct. It used often to do the same thing with dry sticks (in order not to forget the way, I suppose), while on one occasion, it swallowed a piece of hard cowhide, a foot long, and consequently could not bend its neck for twenty-four hours after—till the hide softened, in fact. The story also went that "Byles, the lawyer" (as he was called), mistook the tail of one of the pet lambs for a snake, and actually had it down his throat, but was "brought up" by the body of the lamb! Byles inspired a wholesome respect in all the dogs and cats, but was very peaceable as a rule. One of our men had played some trick on him, however; and the result was that Byles incontinently "went for him" on every possible occasion, his long legs covering the ground like those of an Ostrich, while he produced a demoniacal row with his bill. It was amusing to see his victim dodging him all over the place, or sometimes, in desperation, turning on him with a stick; but Byles evaded every blow by jumping eight feet into the air, coming down on the other side of his enemy, and there repeating his war dance; while he always threatened (though these threats were never fulfilled) to make personal and pointed remarks with his formidable bill. Shortly after his capture feathers began to appear; and the following is a description of the bird at the age of about two months:—"Tail-feathers white, remainder of plumage glossy green-black; bill black; legs and feet grey." After this spots and patches of white appeared on the centre of upper mandible, head, back, and wings; these gradually extended, till, by the end of May, the adult plumage was all acquired. Then my interest in Byles ceased, and latterly he strayed away to his native swamps.

Breeding-Notes.—*C. maguari* is another of our early-breeding birds, nesting generally about the middle of August, though eggs may be taken as late as November or December. It is then semigregarious in its habits, and, notwithstanding that an isolated nest is of common enough occurrence, several may be found close to each other in some favourite locality. Once I found ten nests in one swamp, some of which were within ten yards of each other. The deepest fens are those chosen; and the nest is placed among the thickest and highest rushes, rarely at the edge of clear water. It is a strong construction, capable of supporting a man's weight, and is built of thick stems or sticks of a water-plant, stems of "hunco," and of different kinds of water-grasses, rising from two to three feet above the surface of the water, with a diameter at the top of about two feet. There is sometimes a hollow for the eggs; but the top is as often quite flat. The birds occasionally sit close; and I have more than once found that it tried my horse's nerves rather severely to come suddenly on a nest off which rose one of these great ungainly creatures. It is rarely difficult to find the nest; for the bird usually stands up on it on hearing any one in the vicinity, and consequently its head and neck may be seen above the rushes a hundred yards off.

Four is the largest number of eggs laid; but three is the general clutch; and the latter number are frequently hatched out. They are of a chalky, dirty-white colour, and average $3\frac{1}{40} \times 2\frac{3}{40}$, with a considerable variation.

40. PLEGADIS FALCINELLUS (L.).

Of very irregular occurrence. In December of 1875 I saw a flock of about a hundred; and during the remainder of that month a few were to be seen about the plains. On the 5th of January of the ensuing year four flocks, of about ten each, were observed flying in a northerly direction; after which, at the end of March, I saw a pair in one of the swamps. Again in December of 1877 it was generally and abundantly distributed, disappearing about the beginning of January. My last note refers to a solitary bird seen in the middle of April of the same year. The foregoing records all the appearances of this bird during the last seven years. Such a flock as that first mentioned is rather a striking sight, perhaps more so from the rarity of the bird here.

41. PHŒNICOPTERUS IGNIPALLIATUS, Geoffr. & d'Orb. Flamingo.

Abundant in all our saltwater or brackish lagoons, and even occasionally to be found in freshwater swamps. The natives tell me it breeds here; but none of them have yet earned the reward I offered to be shown a nesting colony. One of these sites is said to be in the "Cañada del Malo" (Swamp of the Evil One), about five miles from here. I have seen immaturely plumaged birds, but do not remember at what season of the year.

42. PLATALEA AJAJA, Linn. Spoonbill.

Also abundant, but is only a summer visitor. It arrives about the beginning of September, and leaves again in April; consequently it should breed here; but, as with the last species, I have still to look forward to finding its eggs as the reward of future researches. It is generally dispersed in the district, frequenting swamps as well as saltwater lagoons, and on its first arrival appearing in flocks of from five to a hundred. In feeding it wades slowly along, while the bill is half immersed and waved rapidly from one side to the other.

43. ARDEA EGRETTA, Gm.

Abundant, particularly in the summer months—that is to say, if the swamps are dried up. In the winter its appearance is more irregular: in some years it is very scarce; and in others none are to be seen at all. Neither it nor the succeeding species (*A. candidissima*) affect the brackish or saltwater lagoons and creeks very much, but are generally distributed among the swamps. Though neither species is gregarious, both may be occasionally seen in company, and they nest together in colonies.

Breeding-Notes.—In November of 1873 I found a large breeding-colony of *A. egretta*, *A. candidissima*, and *Nycticorax obscurus,* in the heart of a lonely swamp. The "huncos," or rushes, were very high and thick, but had been broken down by the birds in a patch some fifty yards in diameter.

There were from three hundred to four hundred nests, as well as I could judge: of these three fourths were of *A. egretta*; and the remainder, with the exception of two or three dozen of *N. obscurus*, belonged to *A. candidissima*.

Those of the first-mentioned species were slight platforms of hunco-stems, placed on the top of the broken huncos, at a height of from two to three feet above the water, and barely a yard apart.

The nests of *A. candidissima* were built up from the water to the height of a foot or a foot and a half, with a hollow on the top for the eggs; they were very compactly put together, of small dry twigs of a water-plant. A good many were distributed among those of *A. egretta*; but the majority were close together, at one side of the colony, where the huncos were taller and less broken.

The nests of *Nycticorax obscurus* much resembled the latter in construction and material; but very few were interspersed among those of the two other species, being retired to the side opposite *A. candidissima*, on the borders of some channels of clear water; there they were placed among the high huncos, and a few yards apart from each other. I also saw three or four close to the colony of *Rostrhamus sociabilis* (mentioned at the beginning of this paper), about a hundred yards away.

The larger Egrets remained standing on their nests till I was within twenty yards of them, and lighted again when I had passed. In this position they looked much larger than when flying. The smaller Egrets first flew up onto the huncos above the nest, and then immediately took to flight, not returning, while *N. obscurus* rose and sailed away, uttering a deep *squawk, squawk,* long before one came near the nest.

At one side of the colony a nest of *Ciconia maguari*, with two full-grown young, seemed like the reigning house of the place.

It certainly was one of the finest ornithological sights I ever saw:—all around a wilderness of dark green rushes, rising above my head as I sat on horseback; the clouds of graceful snowy-white birds perched everywhere, or reflected in the water as they flew to and fro overhead; and the hundreds of blue eggs exposed to the bright sunlight. If my horse had come down with me as I galloped home that night I should have presented the appearance of a gigantic cutlet enveloped in egg-sauce; for I was carrying about my person two or three hundred eggs of *Cygnus nigricollis, Ciconia maguari, Chauna chavaria, Ardea egretta* and *A. candidissima, Nycticorax obscurus, Polyborus tharus, Rostrhamus sociabilis,* and *Milvago chimango,* to say nothing of Ducks', Waterhens', Coots' and other smaller birds' eggs, *ad infinitum.*

A. egretta and *A. candidissima* lay four eggs each, though the former rarely hatches out more than three. *N. obscurus* lays and hatches out three. The eggs of all three species are of the same shade of light blue. The first average $2\frac{7}{40} \times 1\frac{21}{40}$; the second $1\frac{25}{40} \times 1\frac{9}{40}$, and *N. obscurus* $2 \times 1\frac{18}{40}$. Those of the first-mentioned two species vary greatly in size; but the averages of all three are taken from very large series of specimens.

44. Ardea candidissima, Gm.

I have no record of this species being seen during the winter months of May, June, and July; but in all other respects the notes on *A. egretta* are also applicable to *A. candidissima.* Given plenty of water in the swamps, and it is generally and abundantly distributed all through the spring, summer, and autumn. For breeding-notes, see preceding species.

45. Nycticorax obscurus, Bp.

Resident and abundant, so long as there is water. One generally finds it perched on some rushes at the side of clear water, whence it rises with a deep *squawk* on being disturbed, and flies slowly and heavily away. For breeding-notes, see *A. egretta.*

46. Ardea cocoi, Linn.

Also resident, and generally distributed, though not so abundant as the last species. It may be found about the saltwater lagoons, the marshes, and occasionally on the plains. As a rule, it is solitary in its habits, even a pair being rarely seen together, and is also very shy and difficult to get within gunshot-range of. The flight much resembles that of the

English Heron; and the cry, seldom uttered, is harsh and Heron-like.

Breeding-Notes.—It nests in October or November, and that singly, not in colonies. The nest is similar to that of *Ciconia maguari*, but slighter, and is also placed in a swamp. Four is the largest number of eggs I have taken; they are pale blue in colour, rather more pointed in the shape than those of the preceding three species, and average $2\frac{28}{40} \times 1\frac{32}{40}$.

47. Ardetta involucris (Vieill.).

Not very common, though more so in some years than in others. It is quite solitary in its habits, frequenting the high and thick huncos in the deepest swamps; there it perches on rushes, and only rises a few yards from one, to drop again after flying a very short distance. The slim body and peculiarly shaded plumage so perfectly harmonize with the rushes, that I never yet saw the bird before it was on the wing. The other day one flew up from its perch within three yards of my horse's head, but I only perceived it when it rose. The flight is hurried and weak. The cry, a feeble strident note, I have only heard from a wounded bird.

Breeding-Notes.—The nest, two of which only have come into my possession, is placed in a deep swamp, and is built up from the water, of short little pieces of dry hunco-stems; but of its construction I am doubtful, as the descriptions given me of the two above-mentioned nests vary considerably. One was taken with four eggs, very much incubated, on the 30th November, and the other with five, on 1st October. The colour of the eggs is rather striking—a pale green, exactly like that of a young pea-pod. In size they average $1\frac{11}{40} \times 1$.

48. Harpiprion cærulescens (Vieill.). "Bandooria."

Is not uncommon, but very irregular in its appearances. It is generally seen in pairs, either about the swamps or at any pool in the plains. The flight is strong, and not unlike that of the Curlew; and it has what might be called a similar cry, distinguishable at a considerable distance. It is said to be very good eating, but requires to be buried in fresh earth for twenty-four hours to rid it of the too strong smell and taste.

Breeding-Notes.—The only nest I ever saw was taken in the heart of a deep swamp, on the 9th of November, and, though the bird was not seen, I have little doubt belonged to this species. It was built of rushes and water-plants, in a similar manner to those of *Chauna chavaria,* but not so large. The three eggs (very much soiled) were of a buff or stone ground-colour, with a few small red spots, most abundant at the blunt end. Acutely pointed, and average $2\frac{28}{40} \times 1\frac{31}{40}$.

49. Aramus scolopaceus, Gm. "Viuda loca."

The Spanish name, the literal translation of which is "mad widow," is given to this bird by the natives from its sombre plumage, solitary habits, and peculiar cry. It is generally distributed through the swamps, frequenting the deeper ones by preference, and, though usually found singly, may be met with in fours and fives, or even as many as twenty. Mr. Durnford correctly describes its "heavy laborious flight, performed by slow beats of the wings, which it sometimes raises so high as nearly to meet over its back," but might also have added that the legs hang down at an angle of 45°, giving the bird a particularly ungainly appearance, and that its flight is never prolonged. The cry, more indulged in at night than through the day, is a loud, long, melancholy wail, and, heard towards the small hours, produces an uncomfortable eerie feeling on the hearer. It might be some lost spirit of the swamps, or Nickar the soulless himself, shrieking and crying.

Breeding-Notes.—It breeds in the heart of the swamps, building its nest, of dry hunco stems, up from the water, just high enough to keep the eggs dry, and with a hollow on the top about a foot in diameter. The eggs are of a stone-coloured or buff ground, with large blotches and spots of either a faded red colour or light rufous brown, varying considerably in different specimens. The average measurement is $2\frac{16}{40} \times 1\frac{30}{40}$ (Mr. Durnford gives $2\frac{20}{40} \times 1\frac{32}{40}$). The nesting-season lasts from the beginning of August till well on into November.

50. Plegadis guarauna (L.). "Cuervo," or Crow.

Is resident, though not so abundant in the months of May, June, and July. In August, particularly if the season has been rainy, large flocks come in from the S.W., and scatter themselves all through the swamps and over the low ground. These flocks vary in size from a few individuals up to a hundred; and the birds, excepting those few remaining through the winter with us, feed always together. In January and February it may be found on the plains, locusts seeming to constitute its principal food then. It is also one of the frequenters of the killing-establishment, coming in flocks for the offal. The flight is strong and rapid. The cry or note, a species of squawk, repeated two or three times.

Of its breeding-habits I know nothing, and cannot even learn if it nests here or not.

51. VANELLUS CAYENNENSIS (Gm.).

Called by the natives "Tero-tero," from its cry.

Very common. Generally to be met with in pairs, but in the autumn may sometimes be found in small flocks. It frequents both the plains and low or marshy grounds, feeding on worms, insects, &c. The cry is totally unlike that of the Lapwing, being a sharp *tero-tero, tero-tero,* with nothing of the Lapwing's plaintive note about it. At night the passing of any person or animal produces its utterance; and consequently the natives use it as a watchman, frequently alluding to the cry as the signal of somebody passing by, or a herd of horses or cattle stampeding. On the frontier it usually heralds a midnight Indian raid; and I remember once hearing the narrative of an attack on one of the smaller forts, in which nearly seventy Christians were killed: the narrator (one of the three or four survivors) mentioning, quite naturally, that the sentinel heard the tero-teroing, and it did not need the following roll of countless horse-hoofs to cause him to raise the alarm.

A friend told me of a white *V. cayennensis* he saw near Bahia Blanca; and two or three years ago I saw a specimen semialbino in its plumage. The wing-spurs, which are of a beautiful pale coral-colour, I never saw used; and they seem to be more ornamental than useful. (Iris ruby-coloured, pupil black.)

Breeding-Notes.—The breeding-season lasts from the middle of June till January or February; so that Mr. Durnford's supposition, that it has probably two, and sometimes three, broods in the season, is more than likely to be correct. Occasionally the bird will stand over the nest until one rides close up to it; but more generally both birds steal quietly away and remain at a distance, unless the intruder should pass very near the nest or stop to pick up the eggs; then they will alight within a yard of him, and with half-raised wings and angry cries express their rights of ownership. Should a flock of sheep be driven over the nest, both birds stand on guard at it, and compel the sheep to divide and pass on each side of it. Again, it is not unusual to see a sheep looking curiously at a nest of eggs, while the Tero-tero, standing within a foot of its nose, threatens and expostulates with it in the most earnest manner. I was amused lately with a similar case, when a horse stood for five minutes in front of the nest, but eventually raised its head after a long inspection of the indignant bird, and turned away; it looked so like an exemplification of the fable of the "Bull and the Frog." For *V. cayennensis* is rather a bumptious individual, and only cries "peccavi" when swift-winged *Larus cirrhocephalus* undertakes its punishment.

The nest is generally a hollow scraped in the ground, and sometimes lined with a little dry grass. The four eggs are very like those of the Lapwing in shape and colour, and average in size $1\frac{33}{40} \times 1\frac{13}{40}$.

52. Himantopus brasiliensis, Brehm. "Tero Reál," or "Royal Tero."

Also common, though not so abundant as *Vanellus cayennensis*. It is to be found on marshy ground, on the borders of swamps, or about any lagoon or pool. In my estimation it is a very handsome bird as regards plumage, and, notwithstanding its disproportionately long legs, rather graceful than ungainly in its gait. On the wing it is otherwise; for then it looks too large in the body, while it flies with short quick beats of the wings. The cry, especially when a flock is passing overhead, has reminded me of a lot of fox-terriers in full chase, yelping and snapping.

Breeding-Notes.—The one or two nests I have taken were on the respective dates of 21st August and 18th October (the latter much incubated). In the former case the bird sat very close. Generally the birds both remain at a distance, agitating their wings, crouching down on the ground, and constantly uttering their cry. The nest is placed on marshy ground, or at the edge of water, and consists merely of a bed of roots and decayed grass, just high enough to keep the eggs dry. These are four in number, and very like those of *V. cayennensis*—so like as to be almost undistinguishable. The ground-colour is rather richer and darker, and the black blotches larger in my specimens; but it would be necessary to have a large series in order to be sure that this difference is really always existent. They average $1\frac{33}{40} \times 1\frac{10}{40}$.

53. Ægialitis falklandica.

Common, except in times of drought. It affects the borders of marshes and lagoons, and with the cinnamon-coloured patch on the back of its head, and the black-barred breast, is a very noticeable and handsome little bird.

Breeding-Notes.—The latter half of August and beginning of September constitute the breeding-season. Four nests which I have taken were situated close to swamps, and were only a hollow scraped in the ground, and more or less lined with dry grass. On one occasion the sitting bird remained at a little distance watching me; but the other times it only left the nest when I was a yard from it, and hobbled away with both wings drooping as if broken, in the most natural manner possible. The full clutch is three (two of the four nests having that number). They are pointed in shape, of an olive ground-colour, with black spots (similar to the Lapwing's, in short), and average $1\frac{13}{40} \times 1\frac{1}{40}$.

54. Larus dominicanus, Licht.

55. Larus maculipennis, Licht.

56. Larus cirrhocephalus, Vieill.

My notes on the above three species, all of which are common here, are in the hands of Mr. Howard Saunders, who will doubtless make use of any thing new in them. *L. maculipennis,* I have reason to believe, breeds in the district, in company with a few pairs of *L. dominicanus*; but as yet I have been unable to discover a nesting-colony. (*L. maculipennis,* iris very dark brown; *L. cirrhocephalus,* iris yellow.)

57. Podiceps major, Bodd.

Not uncommon in the spring, and is found either singly or in pairs. (Iris yellow.)

Breeding-Notes.—*P. major* breeds about the end of August, placing its nest in the thickest rushes of the swamp. The nest, built of wet water-weeds, is raised just above the level of the water; and I have twice seen the sitting bird hastily draw some weeds over the eggs before leaving them, on my approach. The clutch consists of three; and these are of the usual Grebe colour, generally much soiled and stained. They average $2\frac{6}{40} \times 1\frac{7}{40}$, the length sometimes presenting a variation of $\frac{9}{40}$, even in eggs of the same nest.

58. Podiceps rollandi, Quoy & Gaim.

More abundant than the last, and very generally distributed. It is to be met with, singly or in pairs, on every marsh, lagoon, or pond, and even in a cattle-well when the water is nearly flush with the surface of the ground. Both it and the preceding species are rather troublesome to shoot, diving to the flash of the gun. (Iris claret-colour, with black specks.)

Breeding-Notes.—*P. rollandi* nests during the latter half of September and beginning of October. The nest is a slight construction of water-weeds, floating on the surface of the water, and only kept stationary by the surrounding rushes. Like *P. major,* it covers the eggs before leaving them. Five is the largest clutch of eggs I have taken; they are originally of a bluish-white colour, but after some time become covered with a brown incrustation of a chalky nature. The average measurement is $1\frac{30}{40} \times 1\frac{9}{40}$; but there is a variation of $\frac{11}{40}$ in length and $\frac{7}{40}$ in breadth between my largest and smallest specimens.

59. CHAUNA CHAVARIA, Linn.

Called "Chaha" by the natives, after its cry.

C. chavaria is, as may well be imagined, a most striking bird, both in size and appearance; and when such is the case with one individual, the impression produced by seeing a hundred pairs together is not likely to be less. There is a large island among a network of swamps a mile from here, on which, at certain seasons of the year, I have frequently seen that number, not collected into a flock, but in pairs. I may note that it pairs for life. Of course, after the foregoing, it is unnecessary to add that it is resident and very common. The swamps and brackish lagoons constitute its haunts and feeding-grounds. On one or two occasions I have seen a bird alight in the deeper water and swim with only a very small portion of its body immersed; but it prefers to wade where the marsh is shallower. But what most excited my astonishment was to see a Chaha perched on the top of a tree twenty feet from the ground. A week after this occurrence I saw three birds in a similar position, in a small wood on the edge of one of our larger lagoons. During a long residence here, and thorough acquaintance with this species (seeing it every day, in fact), I have never witnessed more than these two cases of such a feat on the part of *C. chavaria*, and should have been utterly sceptical of the testimony of anybody else to the fact.

In the summer-time it is much addicted to soaring, and scores may be seen at a time, rising in great spiral circles till they become mere specks in the sky, and actually disappear at last. Even at this elevation the cry is distinctly audible, and has often drawn my attention to the bird as having really vanished into the blue ether.

The cry, which may be often heard at night, is frequently indulged in, and consists of the syllables *cha-ha*, uttered by the male, while the female invariably responds to it, or rather follows it up with *cha-ha-lí*, placing the accent on the last syllable. Preparatory to producing it, if on the ground, the bird draws back its head and neck slightly; and at that moment, if one is sufficiently near, the inhalation of air into the chest may be faintly heard. The note is of great strength and volume, and is still distinguishable a couple of miles away, if the day should be calm.

The food, as far as I have been able to ascertain, is gathered from the floating duckweed and other vegetable matter of the swamps.

One has to be on one's guard against the formidable wing-spurs on laying hold of a wounded Chaha. On one such occasion, a stroke aimed at my face as I stooped to pick the bird up, was very nearly successful; the spur caught in my coat-collar, and I was almost pulled out of the saddle by the bird's weight. I have seen a young bird, as yet unable to fly, beat off and follow up a dog, striking quickly and heavily, the half-folded wings being used alternately.

The flight is slow, with long powerful sweeps of the great wings. I had almost forgotten to mention that if the hand is passed down the breast of the Chaka, pressing the plumage slightly down, a crackling sound is produced; probably from the air confined among the feathers.

Breeding-Notes.—Well might Mr. Durnford express surprise at the breeding-habits of this species. At the end of June (midwinter) he took nests with eggs; while I have frequently taken them in May, June, July, and August, and also in autumn, in the month of March. But September and October constitute the real breeding-season, when the bulk of the birds lay.

The nest is a shallow light construction, build of dry rushes with a hollow on the top for the eggs. The foundation is in the water, above the surface of which it rises only a foot or two, with a diameter of from two to three feet. Narrow swamps are generally chosen for its situation; or if in the centre of a large one, it is placed at the side of some clear water. The female sits pretty close, and on being disturbed rises silently, without the customary cry. Four is the largest number of young I have seen in one brood; but the clutch of eggs reaches as many as six. These are of a white colour, occasionally tinged with light buff, oval-shaped and smooth-shelled. They average $3\frac{18}{40} \times 2\frac{12}{40}$, with a variation of from

$3\frac{1}{40} \times 2\frac{7}{40}$ to $3\frac{25}{40} \times 2\frac{15}{40}$. There is no difference between the autumn or winter broods and the spring ones, either in the number of eggs in the clutch or in their size and colour.

The young, when hatched, are covered with an abundance of beautifully soft down, of a yellow-brown colour. Even at this age the larger wing-spurs may be felt through the down. In a very few days they leave the nest and follow the parent birds, generally remaining in the swamps or close to them; though I have a note, dated 1st February, which refers to four in down seen with the old birds at a considerable distance from water. Even when what seems to be the adult plumage is acquired, they still remain under the parent birds' care, and are as yet unable to use their wings. The nestling's note is a feeble chirp; and the cry, like the power of flight, is long in being attained.

60. Rhea americana. "Avestruz."

Is nearly extirpated in this district. There are still some on the neighbouring estancia, up towards Cape San Antonio; and we also have a few in the fastnesses of the more inaccessible rincones. My father lately gave strict orders anent the preservation of the Rhea—the "Perdiz grande," *Rhynchotus rufescens*, Temm. (at least I believe it is this species), a few of which are also to be found in the rincones, and its congener, the "Perdiz comun," *Nothura maculosa*, Temm., the latter being fast thinned out. But in this country the enforcement of any such decree is rather difficult. I was once told by three Basques whom I found shooting Ducks on our land, that they "had the best of the argument, for they had each a gun, and I was unarmed;" and though the remark was made half in jest, and I retorted in the same spirit that, "as I was on horseback, and they on foot, I was in a position to ride round them and argue with a series of six very weighty and convincing facts, and that at a long range," yet I had just to be content with warning them against being found on the land again.

The Rhea, if run in a straight line, will draw away from almost any horse. I took up the chase on one occasion as an

Ostrich passed me, number one having run it for a league and pumped his horse. So I put on a spurt, and pressed it for another league; but that exasperating bird legged along in a leisurely manner, looking like a boy with his hands in the pockets of his grey knickerbockers, and rather increasing the distance between us than otherwise. Then number three saw us coming, and got to horse in order to join the fun; unfortunately it took a minute or two to bit his half-broken horse, and he lost the chance of turning the bird back to me. Number three was pulling up on it though, when one of those nice mud creeks intervened; the Rhea passed it in two strides, but his pursuer prudently concluded he had no particular interest in ascertaining if the mud was twenty feet deep, or only ten. The only sure method of procedure is to head the bird off, and turn it back upon one of the other pursuers, who turns it again, and so on, till ultimately it gets so confused and stupid, that a chance occurs of "bolearing" it. The weapon used in this chase, the "bolas del avestruz," consists of two lead or brass balls, attached to the extremities of a thong of hide six feet long. These are whirled and thrown, and, if the aim has been true, twist inextricably round the bird's legs.

Young Rheas are easily tamed, but are rather objectionable about a house, as they will swallow any thing that is "neither too hot nor too heavy."

On the frontier line the Rhea gives notice of the Indians being on their way in from the desert, as the Christians see flocks of birds running in all along the horizon, and know well how to interpret the sign. A body of two thousand Indians is enough to disturb the Rheas; besides they hunt them as they come sweeping in.

61. NOTHURA MACULOSA, Temm. "Perdiz comun," or Common Partridge.

Mr. Hudson, I find, has forestalled all my notes on this species in his paper on Patagonian birds (P. Z. S. 16th April, 1872); so I will do little more than allude to its nesting-habits.

It is still common here, though greatly reduced of late years.

Breeding-Notes.—The breeding-season lasts from the beginning of November to the end of February. The nest is placed in a tuft of grass, on the plains, and consists only of a little dry grass and a feather or two. Generally the female sits close, and, on being put up, rises without the usual alarm-note, while it does not fly far. Nine is the largest clutch of eggs I have taken; but the more general number is five or seven. They are oval in shape, very glossy, of a beautiful purple or dark claret-colour, and average $1\frac{28}{40} \times 1\frac{10}{40}$.

XIV.—*On the Birds of the Sierra Nevada of Santa Marta, Colombia.* By Osbert Salvin and F. DuCane Godman.

(Plates IV. & V.)

[Continued from p. 125.]

Pipra auricapilla, Licht.

Minea (2000 ft.), ♂, 15th and 18th January, 1879. "Iris chalky white." ♀, 21st January, 1879. "Iris brown."

"Found in the depth of the forest. A very noisy bird, frequenting the tops of the highest trees."

Chiromachæris manacus (Linn.).

Minea (2000 ft.), ♂, 16th and 22nd January, 1879. "Iris dark brown; legs orange-red."

"Only found in the densest brushwood, and seen with difficulty. Makes a peculiar loud noise, like cracking nuts."

Tityra personata, Jard. & Selb.

Minea (2000 ft.), ♂, 13th February, 1879. "Iris yellowish red; skin round the eyes bright Indian-red."

Tityra albitorques, Dubus.

Valencia, ♂ ♀, 27th May, 1879. "Iris brown."

Pachyrhamphus niger, Spix.

Santa Marta, ♂, 4th April, 1879. "Iris brown."

In the dense bush.

Furnarius agnatus, Scl. & Salv.

Valle Dupar, ♂, 15th May, 1879. "Iris fine chestnut-brown. Local name 'Albañil' (mason), from its well-constructed nest."

Agrees with the type of this species obtained by Mr. Joad also at Valle Dupar.

Leptasthenura andicola, Scl.

Sierra Nevada (10,000 ft.), ♂ ♀, 18th, 19th, and 22nd July, 1879. "Iris dark brown."

Agrees with Ecuador specimens of this species, which has never before, so far as we know, been detected in the Andes of Colombia.

Synallaxis candæi, d'Orb. & Lafr.

Synallaxis candæi, Scl. P. Z. S. 1874, p. 15, pl. iii. f. 2.

Valencia, ♂, 28th May, 1879. "Iris brown."

Agrees with Mr. Sclater's specimen from Santa Marta.

Synallaxis antisiensis, Scl.

Synallaxis antisiensis, Scl. P. Z. S. 1874, p. 18.

This specimen was included in Mr. Simon's Santa-Marta collection; but the label belonging to it has been lost.

It agrees with Mr. Sclater's type of *S. antisiensis,* described from a specimen obtained by Fraser at Cuenca, in Ecuador, except that the forehead is more strongly streaked with black.

Synallaxis wyatti, Scl. & Salv.

Synallaxis wyatti, Scl. & Salv. P. Z. S. 1870, p. 841; Scl. P. Z. S. 1874, p. 25.

Sierra Nevada, ♂ (12,800 ft.) 21st July, ♀ (10,000 ft.) 23rd July, 1879. "Iris dark brown."

These specimens certainly belong to the species discovered by Mr. Wyatt in the Paramo of Pamplona, above Vetas, of which he obtained a single male example, now in Mr. Sclater's collection. The male sent by Mr. Simons is apparently more adult than the type, and has the distinct yellowish-brown throat-spot characteristic of this section of the genus.

XENOPS GENIBARBIS, Ill.
Minea (2000 ft.), ♀, 16th January, 1879. "Iris brown." "Among bushes and dense forest."

DENDROPLEX PICIROSTRIS (Lafr.).
Santa Marta, ♀, 2nd April, 1879. "Iris brown."

DENDRORNIS SUSURRANS, Jard.
Minea (2000 ft.), ♂, 17th January, 1879. "Iris brown." Agrees with Panama specimens attributed to this species.

PICOLAPTES LACRYMIGER (Des Murs).
San Sebastian, ♂, 25th July, 1879. "Iris brown."

THAMNOPHILUS NÆVIUS (Gm.).
Minea (2000 ft.), ♂ ♀, 17th January, 1879. "Iris brown." "In dense brushwood."

THAMNOPHILUS LEUCAUCHEN, Scl.
Santa Marta, ♂ ♀, 2nd April, 1879. "Iris brown."
Valencia, ♂, 23rd May, 1879. "Iris brown."
"Common in thicket and bush, but rarely seen."

FORMICIVORA INTERMEDIA, Cab.
Santa Marta, ♂, 17th February, 1879. "Iris dark brown."
Ditto, ♀, 4th April, 1879. "Iris brown; legs slate-grey."
Local name "Gallinetica."

PHAETHORNIS ANTHOPHILUS (Bourc.).
Valle Dupar, ♀, 29th April, 1879. "Iris almost black."
Valencia, ♂, 23rd May, 1879. "Iris dark brown."
"In the forest on flowers; rare and very shy. The specimen from Valle Dupar came into the house."

*CAMPYLOPTERUS PHAINOPEPLUS. (Plate IV. fig. 1.)
Campilopterus phainopeplus, Salv. & Godm. Ibis, 1879, p. 202.
San Sebastian, ♂, 14th and 15th July, 1879. "Iris dark brown."

*CHALYBURA BUFFONI (Less.).
Minea (2000 ft.), ♂ 14th to 23rd January, ♀ 13th February, 1879. "Iris dark brown."

THALURANIA COLUMBICA (Bourc. & Muls.).

Minea (2000 ft.), ♀ 21st and 25th January, ♂ 13th March, 1879. "Iris dark brown."

San Jose (6000 ft.), ♀, 8th June, 1879.

"Only found in dense woods."

MELLISUGA MELLIVORA.

Minea (2000 ft.), ♂, 12th February, 1879. "Iris yellowish brown."

RHAMPHOMICRON DORSALE, sp. n. (Plate V. figs. 1, 2.)

Suprà nigrum viridescente vix tinctum, uropygio angustè æneo-purpurascente, alis fuscis, caudâ valdè furcatâ purpureo-nigrâ; capitis et cervicis lateribus nigerrimis; subtùs gulâ nitidissimâ viridescenti-aureâ, abdomine pallidè fusco, viridi-aureo, præcipue in hypochondriis, lavato; crisso sordidè albido, plumis singulis medialiter maculâ viridescente notatis; rostro brevi, paulo incurvo, nigro; pedibus nigris: long. tota 4·2, alæ 2·3, caudæ 0·5, rectr. ext. 2·0, rectr. med. 1·15, rostri a rictu 0·5.

♀ suprà viridis, tectricibus supracaudalibus æneo-purpurascentibus, caudâ purpureo-nigrâ, rectricibus externis albo terminatis; subtùs albida, gulâ et hypochondriis viridi-aureo maculatis, gulâ mediâ plumis paucis viridescenti-aureis notatâ: long. caudæ rectr. ext. 1·6, rectr. med. 1·1.

Obs. Species egregia, *R. microrhyncho* forsan affinis, sed dorsi colore primo visu distinguenda.

Sierra Nevada, ♀ (9200 ft.) 17th July, ♂ (2000 ft.) 23rd July, 1879. "Iris dark brown."

Of this beautiful species Mr. Simons sends two specimens, marked male and female. Both are in perfect plumage. The female, first obtained, was found flitting about a small stream in a wood. The male was shot on the grassy slope of a hill far from bushes and trees.

OXYPOGON CYANOLÆMUS, sp. n. (Plate IV. fig. 2.)

Suprà obscurè viridis, cervicis lateribus et nuchâ albis, capite toto nigro viridi lavato; cristâ elongatâ nigrâ, striâ mediâ albâ, nares versus bifurcatâ; subtùs albescens, gulâ mediâ plumis elongatis cæruleis ornatâ, corporis lateribus obscure viridi maculatis; caudâ æneo-viridi, rectricibus tribus utrinque extimis, præter apices et pogonium externum (extimâ exceptâ), lactescenti-albis. ♀ mari similis, capite dorso concolori, cristâ elongatâ et gulâ cæruleâ absentibus; rostro et pedibus nigris: long. tota 4·5, alæ 2·7, caudæ rectr. ext. 3·2, rectr. med. 2·9, rostri a rictu 0·6.

Obs. *O. guerini* similis, sed gulæ mediæ plumis elongatis cæruleis nec viridibus, et pogoniis internis rectricum lateralium omnino (præter apices) lactescenti-albis primo visu distinguendus.

Sierra Nevada (10,000 to 14,000 ft.), ♂ ♀, 18th and 19th July 1879. "Iris dark brown."

Mr. Simons sends us several specimens of this interesting novelty, which he obtained at an elevation of from 10,000 to 14,000 feet above the sea, in the Sierra Nevada. The species is perfectly distinct from *O. guerini* of the high mountain-ranges of Colombia, and also from *O. lindeni* from the high lands of Merida. Besides other differences, the colouring of the middle of the throat at once distinguishes these beautiful birds, that of *O. lindeni* being white, of *O. guerini* green, and of our new species blue. In having a large amount of white in the tail, *O. cyanolæmus* approaches more nearly *O. guerini*.

PETASOPHORA CYANOTIS (Bourc.).

Minea (2000 ft.), ♂, 22nd and 25th January, 1879. "Iris brown."

San Sebastian, ♂, 25th July, 1879. "Iris dark brown."

PETASOPHORA ANAIS (Less.).

San Sebastian (6700 ft.), ♂ (many specimens), 27th June, 1878, 15th July, 1879. "Iris brown."

Sierra Nevada (9200 ft.), ♂ 18th July (10,000 ft.), ♀ 19th July, 1879.

PETASOPHORA DELPHINÆ (Less.).

Minea (2000 ft.), 24th January and 14th February, 1879. "Iris brown."

SAUCEROTTIA WARSZEWIEZI, Cab. & Hein.

Santa Marta, ♀, 27th December, 1878.

Minea (2000 ft.), ♂ 14th February, ♀ 29th March, 1879.

Valencia, ♂ ♀, 20th to 25th May, 1879. "Iris dark brown."

CHLOROSTILBON, sp.?
Valencia, ♀, 28th May, 1879. "Iris dark brown."
A female not at present to be determined with certainty.

*PANYCHLORA.
Panychlora, sp.? Salv. & Godm. Ibis, 1879, p. 205.
San Sebastian, ♀, 14th July, 1879. "Iris dark brown."
A female of the species sent in the first collection from Manaure.

NYCTIDROMUS ALBICOLLIS (Gm.).
Arihueca, ♂, 7th March, 1879. "Iris a pale yellowish brown."
"Local name 'Bujio,' called also 'Guardacamino,' because at dusk it flits about the path, always alighting a few paces ahead of the traveller. Makes no noise when flying."

CENTURUS TRICOLOR (Wagl.).
Santa Marta, ♀, 12th December, 1878. "Iris yellowish brown."
"Local name 'Carpintero.'"

MOMOTUS SUBRUFESCENS, Scl.
Santa Marta, ♂, 19th February, 1879. "Iris a rich brownish red."
"This is the true Barranquero; builds its nest in the banks of streams."

CERYLE TORQUATA (Linn.).
River Manzanares, Santa Marta, ♂, 5th April, 1879. "Iris dark brown."

CERYLE AMERICANA (Gm.).
Minea (2000 ft.), ♂, 26th March, 1879. "Iris a dark rich brown."

TROGON CALIGATUS, Gould.
Minea (2000 ft.), ♂, 16th March, 1879. "Iris pale yellowish brown," surrounded by a brilliant circle of orange-yellow flesh.

Ditto, ♂, 29th March, 1879. "Iris brown," a fleshy ring round ditto black; beak a bluish green, like soapstone.

Agrees with Central-American examples, with the head black, rather than with the blue-headed southern bird, *T. meridionalis*.

GALBULA RUFICAUDA, Cuv.

Santa Marta, ♂, 14th and 16th December, 1878. "Iris brown."

"Local name 'Barranquero.' Common all over the province; builds its nest in the banks of streams."

BUCCO RUFICOLLIS, Wagl.

Santa Marta, ♂, 15th December, 1878. "Iris white to brown."

"Common among cacti and acacias."

CROTOPHAGA SULCIROSTRIS, Sw.

Santa Marta, ♀, 2nd April, 1879. "Iris brown."

"Known here as 'Lucia,' also 'Gallinazito,' from its scavenger-like habits. Very common all along the sea-shore, congregating in troops and making a great noise. On alighting they always wag their tail three times."

PIAYA CAYANA (Linn.).

Minea (2000 ft.), ♂, 30th January, 1879. "Iris a lovely carmine lake."

"Local name 'Pajaro ardilla,' from its colour and movements resembling those of a squirrel. Smells worse than a Vulture."

RHAMPHASTOS CARINATUS, Sw.

Minea (2000 ft.), ♂, 23rd January, 1879. "Iris blackish, dying out to a fine yellow."

"Local name 'Guasalé' (Toucan)."

PTEROGLOSSUS TORQUATUS (Gm.).

Santa Marta, ♀, 15th December, 1878. "Iris bright yellow."

Minea (2000 ft.), ♂, 17th January, 1879. "Iris bright yellow."

"Local name 'Guasalé' (Toucan). The naked skin round the eyes is of a fine rich Venetian red. Common about Minea, but very shy; also very common near La Paz. Found in high trees near rivers."

ARA CHLOROPTERA, Gray.

Valle Dupar, ♂ ♀, 15th May, 1879. "Iris brownish-yellow and white in concentric circles."

"Local name 'Guacamayo.'"

ARA MILITARIS (Linn.).

Arihueca, ♀, 9th March, 1879. "Iris alternate circles of pale grey and yellow."

"Local name 'Gonzales.'"

BROTOGERYS TOVI (Gm.).

Santa Marta, ♀, 21st December, 1878. "Iris almost black."

"Local name 'Perico.' Common among the forests of cacti."

CHRYSOTIS AMAZONICA.

Arihueca, ♂, 8th March, 1879. "Iris orange-red to yellow."

Agrees with Venezuelan examples.

PSITTACULA CYANOPTERA (Bodd.).

Valle Dupar (700 ft.), ♂, 13th June, 1878. "Iris brown."

Valencia, ♂ ♀, 21st May, 1879. "Iris brown."

"Spanish name 'Periquito.' Shot in a garden. Found in large flocks all over the plain."

ASTURINA MAGNIROSTRIS (Gm.).

Santa Marta, ♀, 15th December, 1878. "Iris bright yellow."

Minca (2000 ft.), ♀, 18th January, 1879. "Iris bright yellow."

"Local name 'Gabilan.' Common in the forest, but hard to shoot, as it is very wary and not easily seen among the foliage. In the throat of the Santa-Marta specimen I found a large green lizard; they are also very fond of snakes.

In the stomach of the specimen from Minea I found fourteen scorpions."

BUTEO PENNSYLVANICUS (Wils.).

Minea (2000 ft.), ♂ 17th, ♀ 22nd January, 1879. "Iris brownish yellow."

"Local name 'Gabilan.' I found the stomachs full of large grasshoppers, spiders, &c."

URUBITINGA ANTHRACINA (Nitzsch).

Santa Marta, ♀, 31st March, 1879. "Iris brown; beak orange-yellow, with black tip; feet bright yellow."

MICRASTUR SEMITORQUATUS (Vieill.).

Valencia, ♂, 26th May, 1879. "Iris a soft brown; flesh round the eyes a greenish yellow; beak bluish black; feet yellow."

*TINNUNCULUS SPARVERIUS (Linn.).

Tinnunculus sparverius, Salv. & Godm. Ibis, 1879, p. 206.

Valencia, ♂, 23rd May, 1879. "Iris brown; legs yellow."

Ditto, ♀, 25th May, 1879. "Iris brown; feet dark yellow."

POLYBORUS CHERIWAY (Jacq.).

Valencia, ♀, 22nd May, 1879. "Iris brownish yellow; bare skin about head a brilliant orange-yellow; feet yellow."

Ditto, 27th May, 1879. "Iris brown; flesh round the eye flesh-colour; beak bluish, tipped with yellow."

"Local name 'Caricare.' Frequents the extensive savannas at the foot of the Sierra; flies very little and low, running about in the grass in search of lizards &c.; usually associated with cattle; said to seize sick lambs and young goats."

MILVAGO CHIMACHIMA (Vieill.).

Valencia, ♂, 21st May, 1879. "Iris dark orange-yellow; flesh on head beautifully coloured, a bright reddish orange behind eyes, gradually toning down to a lemon-yellow at beak; under-beak a bright orange."

Ditto, ♀, 21st May, 1879. "Iris brown; flesh on head a ale bluish soapstone-colour, same as beak."

Ditto, ♂, 25th May, 1879. "Iris yellowish; feet a bluish soapstone-colour."

Local name "Garrapatero," or "Piopio," from its feeding on the ticks (garapata) of cattle, and from its peculiar cry of *pi-i-o, pi-i-o*. Frequents palm trees, where it builds its nest. A young male which could scarcely fly I knocked down with a stone.

Cathartes aura (Linn.).

Santa Marta, ♂.

Ardea agami, Linn.

Santa Marta, ♀, 28th February, 1879. "Iris rich orange-yellow."

"Local name 'Garza morena.'"

Tigrisoma salmoni, Scl. & Salv.

Minea (2000 ft.), ♂, 22nd January, 1879. "Iris straw-yellow, shading off to deep orange."

Rarely met on the river here, said to be found on the Magdalena in abundance; is eaten."

Agrees with the types of this species obtained by the late Mr. Salmon in the Cauca valley.

Chamæpelia rufipennis, Bp.

Santa Marta, ♀, 3rd April, 1879. "Iris small, pale orange-carmine."

"Local name 'Tierrelita.'"

Sardafella squamosa (Temm.).

Valencia, ♂, 25th May, 1879. "Iris carmine-red; feet flesh-colour."

Leptoptila verreauxi, Bp.

Minea (2000 ft.), 7th February, 1879. "Iris pale orange, very small, a mere line."

"Local name 'Paloma.'"

Rhyacophilus solitarius (Wilson).

Santa Marta, ♀, 16th December, 1878. "Iris black."

"Local name 'Chorlito del Rio.' Common near the sea-shore and sandbanks of the rivers."

XV.—*Contributions to the Ornithology of Siberia.*
By Henry Seebohm.

[Continued from 'The Ibis,' 1879, p. 163, and concluded.]

Since my return from Siberia I have received five small collections of birds from Mr. Kibort, a Polish exile whose acquaintance I made at Kras-no-yarsk′. Amongst these are skins of some species which I did not meet with in the valley of the Yen-e-say′. Most of my collecting was done north of the Arctic circle. Mr. Kibort's skins were all obtained in the immediate neighbourhood of Kras-no-yarsk′, and illustrate the ornithology of the valley of the Yen-e-say′ ten degrees further south of the district where most of my observations were made. I am also indebted to Mr. Meves, of Stockholm, for a report upon the skins obtained by Dr. Théel in the valley of the Yen-e-say′ in 1876. The latter gentleman conducted a scientific expedition which went overland to Siberia, intending to meet Professor Nordenskiöld at the mouth of the great river. Dr. Théel was able to reach lat. 70°; but his ornithological booty, owing to the fact that it was principally obtained south of the Arctic circle, contains many species which I did not meet with. He has kindly allowed me to make use of the report of Mr. Meves to supplement my contributions to the ornithology of the valley of the Yen-e-say′.

Pandion haliaetus (Linn.).

Dr. Théel observed the Osprey fishing in the Yen-e-say′ in lat. 59½° and 61°.

Falco æsalon, Gmel.

When I was in the valley of the Yen-e-say′ I more than once felt almost sure that I recognized the Merlin; but as I did not succeed in obtaining a specimen, it was not included in my first list. I have now the skin of a male in my collection, obtained by Mr. Kibort near Kras-no-yarsk′. Dr. Théel observed it frequently about lat. 70°, and obtained a young bird in lat. 70½°.

Tinnunculus vespertinus (Linn.).

Mr. Kibort has sent me three skins of the Orange-legged

Hobby from Kras-no-yarsk′. They are of the European form, and not of that obtained by Radde on the Amoor.

Astur palumbarius (Linn.).

Mr. Kibort has sent me a female Goshawk from Kras-no-yarsk′.

Circus cineraceus (Mont.).

Mr. Kibort has sent me an adult male of Montagu's Harrier from Kras-no-yarsk′.

Surnia ulula (Linn.).

Mr. Kibort has sent me a skin of a Hawk-Owl from Kras-no-yarsk′. Dr. Théel informs me that he met with this species at Luscinova, in lat. 68½°.

Nyctala tengmalmi (Gmel.).

Mr. Kibort has sent me a skin of this Owl from Kras-no-yarsk′.

Syrnium uralense (Pall.).

Mr. Kibort has sent me a fine male of the Ural Owl from Kras-no-yarsk′. We might naturally have supposed that it would be intermediate in colour between the European bird and the Japanese subspecies *fuscescens*, Temm. On the contrary, it differs quite as much from the European bird, but in the opposite direction—the white parts being very white, and the dark parts being very dark and grey, not brown. A careful examination of the skins in the British Museum and in Dresser's and my own collections leads me to the opinion that there is nothing in regard either of size or colour that can entitle the Japanese bird to claim rank even as a subspecies.

Asio accipitrinus (Pall.).

When I was in the valley of the Yen-e-say′ I failed to secure a specimen of the Short-eared Owl. Mr. Kibort has now sent me two skins obtained near Kras-no-yarsk′.

Upupa epops, Linn.

Dr. Théel was told, on good authority, that the Hoopoe is occasionally seen near Kras-no-yarsk′.

Picus major, Linn.

Dr. Théel found this species breeding near Yen-e-saisk′, and met with it as far north as lat. 60°.

Gecinus canus (Gmel.).

Dr. Théel was told, on good authority, that a Green Woodpecker was found near Kras-no-yarsk′.

Picus pipra, Pall.

Mr. Kibort has sent me a skin of this species from Kras-no-yarsk′. Dr. Théel informs me that he saw the Lesser Spotted Woodpecker near where the Nish′-ni Tun-goosk′ joins the Yen-e-say′, in lat. 66°. The whole of the underparts are unspotted silky white, with the exception of the under tail-coverts, which are slightly streaked with black. The outside tail-feathers have two rudimentary cross bars. The transverse bars on the back and rump are also nearly obsolete. The wing measures 3·75 inches, and the tail 2·5. This species is the *Picus kamtschatkensis* of Cabanis, Bonaparte, Sundevall, and Malherbe. I have shot it at Archangel and in the valley of the Petchora; and besides the skins from Kras-no-yarsk′, I have seen skins from Lake Baical and the Amoor, and have in my collection examples from the islands of Sakhalin and Yezzo, north of Japan. Compared with the South-European form, it is an excellent species. Specimens from Norway and Sweden are somewhat intermediate, being as large as the Siberian form, but in the colour and markings of the back and underparts scarcely differing from the South-European form.

Picus martius, Linn.

Dr. Théel was informed on good authority that the Black Woodpecker is occasionally seen near Kras-no-yarsk′. He met with it himself in lat. 59°.

Iynx torquilla, Linn.

Dr. Théel was informed on good authority that the Wryneck is occasionally seen near Kras-no-yarsk′. He met with it himself in lat. 59½°.

Sturnus vulgaris, Linn.

Mr. Kibort sent me three skins of the Kras-no-yarsk′ Starling. In the P. Z. S. 1878, p. 712, Dr. Finsch has described a new species of Starling from the Chinese High Altai as *Sturnus poltaratskyi,* and has incorrectly identified the skin I brought from the Yen-e-say′ with it. He appears to be right in advocating the distinctness of *S. humii,* Gould (fig. nec descript.), from *S. nitens,* Hume, which latter species was subsequently renamed (on the ground that the name *S. nitens* had previously been applied to the Common Starling by Brehm) *S. ambiguus,* Hume, and *S. humii,* Brooks. Finsch, however, is wrong in identifying his species with *S. humii,* Gould. After carefully examining all the skins in the British Museum and in Dresser's and my own collections, I have come to the following conclusions:—

Sturnus purpurascens, Gould, may at once be recognized by its *bronze-purple* scapulars and wing-coverts, which in the other species are green. The forehead and ear-coverts appear also to be always bronze-purple. The fore neck is always green, and the breast and belly purple, shading into bronze on the flanks. The remaining parts appear to be subject to variation. The crown, nape, and throat are usually mingled bronze and green, occasionally pure bronze, and occasionally pure green. The upper parts, from the hind neck downwards, are purple in some skins from Eastern Asia Minor, which may be taken as the extreme form. In others, however, from the same locality, and from the Altai mountains and North Persia, these parts are green, in which plumage they are the *S. poltaratskyi* of Finsch. In the same localities, however, in Asia Minor, in Yarkand, and in North-west India, every intermediate form occurs; so that the probability is that the difference is due to age or individual variation. Gould's type is one of these intermediate forms.

Sturnus vulgaris, Linn., may at once be recognized by its *green* scapulars and wing-coverts. The ear-coverts appear also to be always green. The fore neck is always a reddish purple, and the breast and belly green, shading into bluish purple on the flanks. The crown, nape, and throat are subject to the same variations as in the preceding species. The upper parts, from the hind neck downwards, are entirely green in skins from Beluchistan, South Persia, Behar, and from Europe to India; but usually the upper back is more or less reddish purple in skins from Europe, and Asia Minor; and in some European skins the upper parts, from the hind neck downwards, are entirely reddish purple. In this case the intermediate forms are *S. vulgaris*, Linn.; the green form is *S. humii*, Gould nec Brooks, and consequently nameless, whilst the reddish-purple form is fortunate enough to have hitherto escaped the infliction of a name. In this case, as in that of *S. purpurascens*, Gould, since differences of geographical distribution do not coincide with differences of plumage, we may fairly refer the latter to age or individual variation. In the Faroe Islands a form occurs with a longer bill than usual (*S. faroensis*, Feilden), which may be worthy of record as a subspecies. A slightly smaller form from the Azores is worthy of *honourable mention*, but scarcely of the *bronze medal* of subspecific rank.

Sturnus indicus, Hodgs., appears to me to be a fair species. I take it to be *Sturnus unicolor*, Marmora, apud Jerdon, *S. nitens*, Hume nec Brehm, *S. ambiguus*, Hume, *S. humii*, Brooks, *S. humii*, Gould, letterpress nec figure, and *S. minor*, Hume. It is found in Scinde, Cashmere, and Nepal. It appears to be a small race of *S. vulgaris*, Linn., having the general colour of that bird, and subject to nearly the same variations. The length of wing measures from 4·3 inches to 4·75. The lower back and rump are often green; but I have not yet met with a skin in which the upper back was green. The flanks, however, appear to be always green, whereas they seem to be always purple in the common species.

The breast appears also to be always purple, whilst in *S. vulgaris* the purple does not extend below the lower throat. I take it to be a good species.

ORIOLUS GALBULA, Linn.

Mr. Kibort has sent me a male of this species from Kras-no-yarsk′, the most easterly locality hitherto recorded of the Golden Oriole.

LANIUS HOMEYERI, Cab.

Great differences of opinion appear to exist as to the number of species into which the Grey Shrikes ought to be divided. Dresser and Sharpe, in their "Notes on *Lanius excubitor* and its Allies" (P. Z. S. 1870, p. 590), recognized two Siberian species. Two skins from the Amoor, fortunately still in the Swinhoe collection, were identified by these ornithologists as adult and immature of *Lanius lahtora* (Sykes). The adult bird is stated to be "*absolutely similar in every respect*" (the italics are not mine) to examples of old *L. lahtora* from the Punjab. The second Siberian species was identified doubtfully, from Pallas's description of *L. major*, with the American *L. borealis*, Vieill. I think Dresser and Sharpe were wrong in both their facts, but right in at least one of their conclusions. The adult bird of the first species, so far from being absolutely similar in every respect to *L. lahtora*, differs from that species in having the general colour of the upper parts considerably paler, and in wanting the narrow black frontal line at the base of the bill. The immature bird is what is generally recognized as *L. major*, Pall., which these writers professed never to have seen.

In the 'Journal für Ornithologie' (1873, p. 75) the subject is handled by Cabanis with that minute attention to details so characteristic of the German mind, and two new species are described, *L. homeyeri* and *L. sphenocercus*. In addition *L. major*, Pall., is recognized as a Siberian bird.

We may at once dismiss *L. meridionalis*, Temm., and *L. algeriensis*, Less., as western forms, which have nothing to do with Siberia. *L. lahtora*, Sykes, seems to me to have no better claim to be considered a Siberian bird. In the allied species black hairs, apparently an extension of the rictal bristles, are found on the forehead at the base of the bill; but in *L. lahtora*, Sykes, more or less black feathers are found there in addition, causing it to approach in this respect *L. excubitoroides*, Swains., where these black feathers are still more developed. *L. lahtora,* Sykes, is probably entirely confined to India, where it breeds—though *L. leucopygius,* Hempr. apud Severtz., from Turkestan, may prove to be this species. The skin from the Amoor in the Swinhoe collection, which Sharpe and Dresser incorrectly identified with *L. lahtora,* Sykes, appears to me to be *L. homeyeri,* Cab., originally described (*loc. cit.*) from South Russia. Hence it passes eastwards through Turkestan, where it has been described by Severtzoff as *L. leucopterus* (Ibis, 1876, p. 184), to Central Siberia, whence Mr. Kibort has sent me two skins obtained by him at Krasno-yarsk′ on the 18th of May and the 12th of August. Eastwards it appears to be found near Lake Baical (Tacz. Journ. f. Orn. 1874, p. 322) and on the Amoor. In this species, as in *L. lahtora,* Sykes, the secondaries are not only tipped with white, but are always white on the basal half of both webs, and some of them are always white on the entire inside web. A third species having this peculiarity appears to be *L. dealbatus,* Defil., from Algeria, Tunis, and Sennaar (*fide* skins in the British Museum). This species appears to be intermediate in the colour of the upper parts between *L. lahtora,* Sykes, and *L. homeyeri,* Cab., differing also from the former in wanting the narrow black frontal line of feathers, and from the latter in its smaller size and distinct geographical range.

Lanius major, Pall.

My immature bird from the Amoor is undistinguishable from *L. borealis,* Vieill.; but I have seen an almost complete series from it to *L. excubitor,* Linn. That the amount of white at the base of both webs of the secondaries is not a question of age, appears to me to be sufficiently proved by the skin of a nestling from Baden in Dresser's collection, in which the white on the secondaries is as much developed as in typical skins of fully adult *L. excubitor,* Linn. The only explanation that I can suggest is that *L. excubitor,* Linn., is the western form, which in Europe may be said to be almost pure-bred. In Asia it would appear to interbreed along the whole line with *L. borealis,* Vieill., which becomes the prevailing form in East Siberia. In America probably only pure-bred *L. borealis*, Vieill., occurs; whilst in Asia pure-bred birds of both species, and every possible cross and inter-cross between them, are to be found.

Another species allied to *L. excubitor*, Linn., appears to be *L. fallax*, Finsch, differing in being somewhat smaller in size, darker in the colour of the upper parts, and in having the white on the primaries and secondaries more developed but nevertheless not extending over the entire inside webs of any of the secondaries. Dresser and Sharpe apparently include this species in their *L. lahtora*, Sykes; but it does not seem to possess the narrow black frontal line. From skins in the British Museum and in Dresser's collection I conclude the geographical range of *L. fallax*, Finsch, to be Abyssinia, Nubia, Egypt, Palestine, Euphrates valley, Baluchistan, and the Punjaub, in which latter district it is found in company with *L. lahtora*, Sykes. I strongly suspect that the "*L. leucopygius*, Hempr." apud Severtz., will also prove to be *L. fallax*, Finsch, since the skin which Finsch brought from the Irtish appears to be of the latter species, though larger in size than usual. Since the geographical ranges of all the Grey Shrikes more or less overlap each other, I should not be surprised to learn that in many cases where two forms inhabit the same district they habitually interbreed. In that case one of the forms thus interbreeding would have to be degraded to the rank of a subspecies; but until intermediate forms are found, we must, I think, consider them as closely allied but distinct species, and not lump three or four of them together, as Sharpe and Dresser appear to me to have done.

Lanius sphenocercus, Cab.

This Shrike is fairly figured in David and Oustalet's 'Oiseaux de la Chine,' plate 76. It appears to breed in Eastern Siberia (Tacz. Journ. f. Orn. 1876, p. 198), to pass through Mongolia on migration (Prjev. Rowl. Orn. Misc. ii. p. 273), and to winter in China (David et Oustal. Ois. Chine, p. 93).

Lanius cristatus, Linn.

Mr. Kibort has sent me three skins of the adult and two skins in the immature plumage of this species. Dr. Theél obtained eggs of this bird. I take it to be the *L. phœnicurus* of Pallas, and the *L. superciliosus* of Latham.

GARRULUS BRANDTI, Eversm.

This very handsome and rare Jay appears to be very common in the neighbourhood of Kras-no-yarsk′. Mr. Kibort has sent me numerous skins.

PERISOREUS INFAUSTUS (Linn.).

Mr. Kibort has sent me two skins of the Siberian Jay from Kras-no-yarsk′. Dr. Theél informs me that he met with this species at various stations on the Yen-e-say′ up to the Arctic circle.

URAGUS SIBIRICUS (Linn.).

Mr. Kibort has sent me three skins of this brilliantly plumaged bird from the neighbourhood of Kras-no-yarsk′. Dr. Theél obtained it at Yen-e-saisk′.

CARDUELIS ORIENTALIS, Eversm.

Mr. Kibort has sent me a fine male of this species from Kras-no-yarsk′.

COCCOTHRAUSTES VULGARIS, Pall.

Mr. Kibort has sent me two skins of the Hawfinch from Kras-no-yarsk′. They agree exactly with others from Asia Minor and Japan.

LOXIA CURVIROSTRA, Linn.

Mr. Kibort has sent me two skins of the common Crossbill from Kras-no-yarsk′.

LOXIA BIFASCIATA, Brehm.

Dr. Theél informs me that he met with small parties of this species between Kras-no-yarsk′ and Yen-e-saisk′.

FRINGILLA MONTIFRINGILLA, Linn.

Dr. Theél informed me that he saw two examples of this species in lat. 59° on the 26th of June.

PASSER MONTANUS (Linn.).

Dr. Theél informed me that he saw the Tree-Sparrow as far north as lat. 60°.

Emberiza spodocephala, Pall.

Mr. Kibort has sent me a skin of this species from the neighbourhood of Kras-no-yarsk′. Dr. Theél also obtained it there and at Asinova, in lat. 61°.

Emberiza aureola, Pall.

Mr. Kibort has sent me the nest and eggs of this species from Kras-no-yarsk′.

Emberiza pusilla, Pall.

Dr. Theél obtained this species in lat. 65° on the 13th of July.

Emberiza cioides, Brandt.

I have received seventeen skins of this handsome Bunting in autumn plumage, and two skins in breeding-plumage, from Kras-no-yarsk′. In both plumages the ear-coverts are deep reddish brown, instead of black as in its Japanese ally, *E. ciopsis*, Bp. All the skins of *E. ciopsis*, Bp., from Japan which I have seen in collections in this country have black ear-coverts; but in the Leyden museum both species are labelled as coming from Japan.

Alauda arvensis, Linn.

Mr. Kibort has sent me several skins of the Sky-Lark from the neighbourhood of Kras-no-yarsk′. They all appear to be identical with our European species, and differ from the Japanese form in being paler on the upper parts.

Alauda pispoletta, Pall.

Mr. Kibort has sent me a skin of this species from Kras-no-yarsk′.

Anthus cervinus, Pall.

This species was first met with by Dr. Theél on the 25th of July in lat. 69°, which is probably the southern limit of its range in the breeding-season.

Anthus trivialis (Linn.).

Dr. Theél found this species as far north as lat. 69°.

Anthus godlewskii (Tacz.), Bull. Soc. Zool. France 1876, p. 158.

Mr. Kibort has sent me two skins, obtained near Kras-no-yarsk′, which appear to be the same form as Taczanowski's new species obtained by Dr. Dybowsky near Lake Baical and by Prjevalsky in Alaschan, in Chinese Mongolia. This species seems to me to be a good one. It is nearly allied to *A. campestris*, but is decidedly smaller and darker in colour on the upper parts.

ANTHUS MACULATUS, Hodgs.

Mr. Kibort has sent me a skin of this Pipit, which differs from the Tree-Pipit in being much greener on the upper parts and somewhat more spotted on the underparts.

MOTACILLA FLAVA, Linn.

I am unable to distinguish skins of this species obtained at Kras-no-yarsk′ from skins collected in Holland.

MOTACILLA PERSONATA, Gould.

Dr. Theél informed me that he did not see this Wagtail further north than lat. 59°. A few versts further north its place was taken by *M. alba.*

MOTACILLA MELANOPE, Pall.

Dr. Theél informed me that he found this species breeding in lat. 59°.

MOTACILLA CITREOLA, Pall.

Dr. Theél informed me that he first met with this species in lat. 65°, on the 11th of July, where it was doubtless breeding at or near its southern limit in summer.

AMPELIS GARRULA, Linn.

I did not succeed in shooting a specimen of the Waxwing in the valley of the Yen-e-say′; but Mr. Kibort has sent me three skins from Kras-no-yarsk′, and Dr. Theél informs me that he found this species common in several localities.

PARUS CYANUS, Pall.

I have received three skins of this bird from Kras-no-yarsk′.

ACREDULA CAUDATA (Linn.).

The Long-tailed Tit appears to be common in the neighbourhood of Kras-no-yarsk′. Mr. Kibort has sent me eight skins. The Siberian form is very beautiful, and almost entitled to rank as a subspecies. The entire head and neck are pure white. The whole of the inside webs of the innermost secondaries are also pure white. In the British and Central-European forms the white on the wing is much less developed; but intermediate forms are not uncommon in North Europe. Dr. Theél informs me that he saw this species as far north as lat. 59°.

CINCLUS LEUCOGASTER, Bonap.

Bonaparte, in his 'Conspectus' (i. p. 252), ascribes this name to Eversmann; but I have been unable to find a reference to any publication of the name earlier than that of Bonaparte. Mr. Kibort has sent me two skins of a Dipper from the neighbourhood of Kras-no-yarsk', which I presume must belong to this species. Both are males; and both were shot on the same day, the 17th of November. The head and nape are sooty brown, much darker than in *C. albicollis*, and not so rufous as in *C. aquaticus*. The underparts of one skin agree with those of *C. melanogaster*; but in the other the white on the breast extends further down, and instead of being sharply divided from the sooty black of the belly it gradually shades into it, passing through the various shades of greyish brown. The genus *Cinclus* presents many difficulties. Dresser, in his 'Birds of Europe,' adds little or nothing to the facts collected by Salvin in 'The Ibis' of 1867, p. 109 *et seq.* I fail to be able to draw the distinction which Salvin does between local races and representative species. If he were to examine the additional material which has come to hand since his article was written, I think he would agree with me that his local races are those of which he possessed a large series, whilst of his representative species he was only able to obtain access to one or two skins. So far as I can see, there is only one species of Palæarctic White-throated Dipper, of which the typical form inhabits Central and Southern Siberia, North India, Turkestan, Persia, and Asia Minor, and will probably stand as *C. cashmiriensis*, Gould. In East Siberia every intermediate form occurs between this and *C. leucogaster*, Bonap., the extreme type of which has the underparts white throughout. In Europe three subspecies have apparently established themselves:—*C. melanogaster*, Brehm, in the north, in which the dark parts are intensified in colour and a shade of rufous is observable on the head and nape; *C. aquaticus*, Bechst, in Central Europe, in which the rufous shade appears on the belly also; and *C. albicollis*, Vieill., in Southern Europe, in which the head and nape are paler brown than in the typical species.

TURDUS OBSCURUS, Gmel.

Dr. Theél informed me that he obtained a specimen of this Thrush as far north as lat. 68°.

TURDUS SIBIRICUS, Pall.

Dr. Theél informed me that the great breeding-place of this beautiful and rare Thrush is in the neighbourhood of Toor-o-kansk′, about lat. 66°. He did not observe it further north than E-gar′-ka, in lat. 67°.

TURDUS MUSICUS, Linn.

Mr. Kibort has sent me both adult and young in first plumage of the Song-Thrush. From the presence of the latter we may, I think, safely infer that this bird breeds near Kras-no-yarsk′. I am not aware of any instance on record of any Thrush migrating before moulting.

RUTICILLA PHŒNICURUS (Linn.).

Mr. Kibort has sent me a skin of the Common Redstart from the neighbourhood of Kras-no-yarsk′—a male in breeding-plumage; so that no doubt can now attach to the easterly range of this species.

CYANECULA SUECICA (Linn.).

Mr. Kibort has sent me a skin of this species, from Kras-no-yarsk′, in the spotted plumage of the young before migration, whence I conclude that the Bluethroat occasionally breeds as far south as lat. 56°.

Saxicola isabellina, Rüpp.

Mr. Kibort has sent me two skins of this Chat from Kras-no-yarsk'.

Muscicapa grisola, Linn.

Mr. Kibort has sent me four skins of the Spotted Flycatcher obtained near Kras-no-yarsk'.

Muscicapa parva, Bechst.

Dr. Theél obtained a female of this species in lat. $61\frac{1}{4}$°.

Alseonax latirostris (Raffl.).

Mr. Kibort has sent me three skins of this Flycatcher from Kras-no-yarsk'.

Arundinax aedon (Pall.).

Mr. Kibort has sent me three skins, from the neighbourhood of Kras-no-yarsk', of this interesting bird.

Hypolais caligata (Eversm.).

Mr. Kibort has sent me three skins of this species from Kras-no-yarsk'. I think there can be little doubt that this bird is the *Motacilla salicaria* of Pallas. Dr. Theél obtained a specimen in lat. 61°.

Phylloscopus fuscatus, Blyth.

Dr. Theél found this species as far north as lat. 59°.

Phylloscopus trochilus (Linn.).

The name of this species does not occur in the list of skins, identified by Mr. Meves, obtained on the Swedish expedition. I found it plentiful in the valley of the Yen-e-say'.

Locustella certhiola (Pall.).

Dr. Theél obtained an adult bird of this species in lat. 62°.

Acrocephalus dumetorum, Blyth, J. A. S. B. xviii. p. 815.

Mr. Kibort has sent me several skins of this bird from Kras-no-yarsk'. Dr. Theél describes it as common between that town and Yen-e-saisk'. He found it breeding in lat. 59°, and obtained a nest with two eggs. Mr. Meves describes the eggs as similar to those of *Locustella nævia*, having a pale rust-red ground-colour, with many greyish-red spots.

CYPSELUS APUS (Linn.).

Dr. Theél informs me that he observed the Swift abundant at Kras-no-yarsk′ and Yen-e-saisk′. He afterwards observed it in lat. 60°, and again in lat. 65½°.

CAPRIMULGUS EUROPÆUS, Linn.

Mr. Kibort has sent me the skin of a female Goatsucker from Kras-no-yarsk′. Dr. Theél recognized its peculiar note in lat. 59°.

ALCEDO ISPIDA, Linn.

Dr. Theél informs me that he saw a Kingfisher near Kras-no-yarsk′.

COLUMBA PALUMBUS, Linn.

Dr. Theél was informed on good authority that the Ring-Dove occasionally occurs near Kras-no-yarsk′.

COLUMBA ŒNAS, Linn.

Dr. Theél was informed that the Stock-Dove is occasionally found near Kras-no-yarsk′. He saw a bird which he took to be this species at Nasimova, in lat. 59½°.

COTURNIX COMMUNIS, Bonnat.

Mr. Kibort has sent me a skin of the common Quail from Kras-no-yarsk′; and Dr. Theél heard its unmistakable note in lat. 61°.

STREPSILAS INTERPRES, Linn.

Dr. Theél observed this species in lat. 70½°.

ÆGIALITES CURONICA (Gmel.).

Dr. Theél found this species breeding at Yen-e-saisk′, and observed it as far north as lat. 60½°.

CREX PRATENSIS, Bechst.

Dr. Theél observed the Corn-crake at Kras-no-yarsk′ and as far north as lat. 59½°.

TOTANUS FUSCUS (Linn.).

Dr. Theél observed this species about lat. 69°, and obtained a young bird.

Calidris arenaria (Linn.).

Numerous flocks of this species were seen by the Swedish Expedition of 1875 at the mouth of the Yen-e-say'.

Tringa temmincki, Leisl.

This species was first met with by Dr. Theél on the 22nd of July, in lat. 65½°, which probably represents the southern limit of its breeding-range.

Anas boschas, Linn.

Dr. Theél observed the Mallard up to lat. 60°.

Fuligula cristata (Leach).

Dr. Theél shot a Tufted Duck in lat. 68°.

Œdemia fusca (Linn.).

Dr. Theél observed the Velvet Scoter in lat. 69° and 69½°.

Sterna longipennis, Nordm.

Dr. Theél obtained a Tern in lat. 63°, which Mr. Meves has identified as belonging to this species.

In my first paper on the ornithology of Siberia, I fear that I scarcely did justice to Prjevalsky. It appears that I was misinformed as to the scientific knowledge of ornithology possessed by this great traveller. His fame as an explorer of almost unknown districts of Central Asia, however, is so great that it almost obscures the fact that he has added very largely to our knowledge of the ornithology of that interesting region.

I may also take this opportunity of expressing my profound regret at the untimely death of my friend, Valerian von Russow. He had been engaged for some months in an ornithological expedition in Turkestan. Just before his return home I had a letter from him, dated Samarcand, telling me of his success; the next intelligence I received was that he had died of smallpox within a week of his arrival in St. Petersburg. In Russow ornithology has lost an enthusiastic field-naturalist, who was rapidly acquiring the scientific knowledge of birds which can only be attained where large series of skins are available for comparison.

His position in the St.-Petersburg Museum is now filled by Modeste Bogdanow, who has lately published a work on the Birds of the Caucasus, and whose recently issued article on the Birds of the Black-earth Zone of the Volga and its Central and Lower valleys contains some excellent field-notes.

XVI.—*Notes on a 'Catalogue of the* Accipitres *in the British Museum' by* R. Bowdler Sharpe (1874). By J. H. Gurney.

[Continued from 'The Ibis,' 1879, p. 470.]

From the genus *Henicopernis,* which I last considered, the transition is easy to that of *Pernis,* to which I now propose to refer, and, in doing so, to allude first to the only European species of the genus, *P. apivorus.*

Mr. Sharpe does not mention the Asiatic range of this species, and refers but briefly to the southern limits of its winter migration, which extend to the African continent and have even been known to reach (though very rarely) South Africa and Madagascar.

So far as I know, but one instance (that of a specimen in the British Museum) is recorded of the occurrence of *Pernis apivorus* in Madagascar, and but three of its appearance in South Africa: one of these birds was obtained by Le Vaillant, and described by him under the name of "Le Tachard" in the 'Oiseaux d'Afrique,' vol. i. p. 82; and the other two occurred in Natal, as recorded in 'The Ibis' for 1859, p. 240, and for 1860, p. 204*.

Several more northerly African localities where *Pernis apivorus* has been met with as a winter migrant are mentioned in the article on this species in Mr. Dresser's 'Birds of Europe,' where many details are also given as to its European habitats, and some relating to its Asiatic range; but that article does not refer to its occurrence in Siberia (where it is said to have been found by Pallas*), nor to its occasional presence in Northern China, as recorded by M. David, and it leaves the question undecided as to whether the *Pernis* which has been found in Japan really belongs to this species.

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* One of these Natal specimens is preserved in the Norwich Museum; the other I have unfortunately lost sight of.

The learned authors of the "Animalia Vertebrata" in the 'Fauna Japonica,' at p. 24 of their volume on the ornithology of that country, write thus:—"*Pernis apivorus*; cette espèce . . . . qui se trouve, suivant Pallas, quoique en petit nombre, dans toute la Sibérie, habite également le Japon, d'où nos voyageurs ont apporté en Europe deux femelles adultes, qui ne se distinguent ni par leurs formes, ou par leurs dimensions, ni par leurs formes ou leur organisation, des individus tués dans les différentes contrées que nous venons de nommer" (*i. e.* Europe, Guinea, Egypt, and Arabia).

Professor Schlegel, in his 'Museum des Pays-Bas,' Pernes, p. 2, under the head of *Pernis apivorus*, has the following entry, which probably refers to one of the above-mentioned specimens:—"Femelle, plumage parfait, Japon, Voyage de Bürger."

I regret that I omitted, when at Leyden some years since, to examine this Japanese specimen; but Mr. Sharpe, who has subsequently visited the Leyden Museum, appears to have arrived at the conclusion that it is referable to *P. ptilorhynchus*, as in his list of the synonyms of that species he includes "*Pernis apivorus*, Temm. & Schl. Faun. Japon. Aves, p. 24," which Captain Legge also does in his work on the Birds of Ceylon, p. 89.

Mr. Seebohm informs me that it was on the authority of this item in Mr. Sharpe's volume, that he stated in 'The Ibis' for 1879, at p. 42, that the Japanese *Pernis* "was incorrectly identified by Temminck and Schlegel with the European Honey-Buzzard," and that he has not himself seen a Japanese specimen.

Mr. Sharpe also refers to *P. ptilorhynchus* "*Pernis apivorus*, Swinhoe, P. Z. S. 1871, p. 341," which seems to involve a conflict of authorities as to the species of *Pernis* that occurs in Northern China. Mr. Swinhoe's paragraph on the subject is as follows:—"*Pernis apivorus*; Père David notes this as found about Pekin in autumn; Schlegel has it from Japan."

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* It does not appear to have been noticed in Siberia by subsequent explorers; *vide* Newton's Yarrell, vol. i. p. 124.

The *Pernis* of Northern China is given as *P. apivorus* by MM. David and Oustalet at p. 18 of their work on the Birds of China; and M. David there remarks respecting it, "Elle s'avance même, bien que rarement, jusqu'en Chine, et j'ai eu l'occasion de la prendre dans la partie septentrionale de l'empire."

The discrepancy between Mr. Sharpe's views on this point and those of the continental ornithologists from whom I have quoted makes it very desirable that specimens of *Pernis* from Japan and China should be carefully examined whenever opportunity offers.

There is no European bird of prey which, both in its adult and still more in its immature plumage, is subject to so complex a miscellany of variations as *Pernis apivorus*. Some of its principal phases of plumage are described in Mr. Sharpe's volume; and these, with others, have been subsequently treated of in the article on this species in Mr. Dresser's 'Birds of Europe.' An excellent epitome of this subject is also given by Mr. Hancock at p. 7 of his 'Catalogue of the Birds of Northumberland and Durham.' I have but little to add to the information which has been collected by these authors; but there are a few points to which I think it may be desirable that I should briefly allude, and which I will preface by two quotations from the pens of Mr. Dresser and of Mr. Hancock. Mr. Dresser remarks, "The inference I deduce from the examination of various examples is, that in immature, and also to some extent in mature dress, the present species is subject to a tendency to albinism . . . . and towards melanism . . . . but, as a rule, the immature birds vary more than the old ones." Mr. Hancock observes, "The plumage of this species varies much, scarcely two individuals being found alike . . . . there are two principal complexions or varieties—one dark, the other pale—affecting equally the sexes, the adult and the immature individuals."

So far as I have observed, the coloration of the plumage in young specimens is much more often dark than pale; individuals as darkly and uniformly coloured as the young male from Sarepta figured by Mr. Dresser are by no means very uncommon; and this plumage would seem to be retained at least to the second moult, as a female which was killed, with two young in its nest, near Romsey, is described by Mr. Sealy in the 'Zoologist' for 1856, p. 5059, as "of a beautiful purple brown all over, no white appearing anywhere, the tail slightly barred with two shades of brown."

This dark plumage is, in young birds, frequently more or less varied by white tips to many of the feathers; and the extent of such variation is not always identical, even in young birds from the same nest. Two such nestlings, taken in the New Forest, and now in my possession, may serve as an instance of this, one of them being entirely dark, with the exception of white tips to the tertials and rectrices, and of transverse white bars on the under tail-coverts, whilst the other has not only the tertials and tail-feathers white at the tips, but also the feathers of the nape, the interscapulars, and the wing-coverts, besides a very decided predominence of white on all the under surface except the upper breast, where the proportions of white and brown colouring are pretty evenly balanced; the dark portions of the plumage in this specimen, however, are quite as fuliginous as those of its more whole-coloured fellow.

The variation in this white-tipped nestling produces a result similar in character, though less in degree, to that exhibited in the white-breasted and nearly white-headed specimen in the Norwich Museum which was killed at Horning, Norfolk, in September 1841, and has been figured by Mr. Dresser, and which, as remarked by that gentleman, is in a phase of plumage of decidedly rare occurrence, though now and then met with. Mr. Dresser has only seen one other example of this peculiar phase; but he quotes Naumann's description of the young male as exhibiting a similar character of coloration. Mr. Hancock also possesses and has figured a specimen of this description, killed at Hawick, which is shown to have been a young bird by the fact of its irides having been grey instead of yellow*. The British Museum possesses a similar specimen from Syria; and another example, with an equal proportion of white in its plumage, and similarly distributed, is represented on pl. 5 of Fritsch's 'Vögel Europas.' Degland also mentions one in the Museum at Brussels as being "presque blanche" (*vide* 'Ornithologie européenne,' vol. i. p. 60).

Mr. W. R. Fisher, in an interesting paper on the variations of plumage in *Pernis apivorus*, published in the 'Zoologist' for 1843, p. 375†, figures and describes the partially white Horning specimen above referred to, and also a very similar specimen shot in Gawdy-Hall wood, Norfolk, as to which he remarks that it had "the space round the eye, and between it and the beak, dark ash-grey," which would seem to indicate that it was an adult bird, and probably a female. This is the only instance that I remember to have met with, either in print or in collections, in which grey on the head was present in a specimen in which the sides and back of the neck and the greater part of the crown of the head were white—examples that are white on all those parts being usually immature, and the grey on the head being, in this species, an evidence of maturity. Mr. Fisher speaks of the Gawdy-Hall bird as being, at the time when he wrote, in the Norwich Museum; but either this is a mistake, or the specimen has long since ceased to exist in that collection, as it is not there now, and I can find no record of it except in Mr. Fisher's article.

Phases of plumage sometimes occur intermediate between such specimens as the speckled-necked nestling from the New Forest, which I have mentioned, and the white-necked Horning bird above referred to; the Norwich Museum possesses such a specimen, of a remarkably intermediate character, apparently a young male, from Beyrout.

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* In the young birds of this species the irides are grey in some specimens and brown in others; in the adults they are of a clear but rather pale yellow.

† It may be right to mention that the views held by Mr. Fisher in 1843, as to the sequence of the changes of plumage, are not entirely in accordance with what is now known to be the fact in this respect.

I may also mention that, in some nearly whole-coloured young birds of this species, the dark purplish or chocolate-brown which characterizes such specimens as the almost melanistic Sarepta male figured by Mr. Dresser, is replaced by a cinnamon-brown of different shades of intensity, which I imagine to be the same phase of plumage as that which Mr. Sharpe, in describing a young bird in the Leyden Museum, speaks of as "very Kite-like in appearance:" two immature specimens in this cinnamon-coloured plumage were killed in company, whilst plundering a wasps' nest, at Honingham, in Norfolk, in September 1841*; and one of them is preserved in the Museum at Norwich.

Mr. Gould figures in his 'Birds of Europe' an immature specimen of *Pernis apivorus* with the entire mantle and the upper surface of the tail brown, but of two shades, being especially so varied on the wing-coverts, secondaries, tertials, and rectrices; the upper surface and sides of the head are clothed with dark brown feathers, showing conspicuous white bases; and all the underparts are white, with dark brown centres to the feathers, increasing in breadth as they approach the tail, and assuming in the abdominal region the aspect of imperfect transverse bars.

Mr. Dresser also figures a very similar specimen as a "young female," taken near Berlin.

I am disposed to think that this phase of plumage is indicative of an already commenced change from immature to adult dress, and that the appearance of imperfect transverse barring on the abdominal region is due to that cause.

Mr. Hancock, at p. 8 of his 'Catalogue of the Birds of Northumberland,' describes a similar bird, but apparently somewhat older, the "flanks, belly, thighs, and under tail-coverts" being all transversely barred, and the irides "yellow," as an "adult female of the second or pale variety."

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* In the early autumn of 1841 several immature specimens of *Pernis apivorus*, in various phases of plumage, were obtained in different parts of Norfolk.

The barring of the tail in this species is thus described by Mr. Hancock—"tail with three or four broad brown bands and smaller intermediate wavy ones." So far as I have observed, the number of the broader bands, both in adults and in immature specimens, is more frequently four than three; and the Norwich Museum possesses a nearly adult female from Fantee, in West Africa, in which the number of such bars is five; but the uppermost of these is somewhat rudimentary and imperfect. On the other hand, Mr. Sharpe describes a young bird, almost a nestling, in which he observed but two principal cross bars on the tail in addition to six or seven of the minor intermediate ones; and the immature bird from Beyrout in the Norwich Museum has a similarly marked tail, from which the usual broad subterminal band is entirely absent.

I do not find any differences in the barring on the tail between immature and adult specimens that can be considered as of constant occurrence; but in the former it is frequently less regular than in the latter, and in young birds of a dark complexion of plumage it often happens that the broader bars on the tail are singularly contorted. I have only once met with this peculiarity in an adult—a female killed whilst nesting in the New Forest; but in this instance the irregularity is limited to the lateral rectrices, and therefore most probably was gradually disappearing as the bird became more mature; I may add that the general colour of the plumage in this specimen is not particularly dark. A good example of contortion in the bars of the tail will be found in the figure of a young female from Suffolk in Meyer's 'British Birds,' pl. 17, 8vo edition; but I have not seen any instance of the contorted markings being quite so distinctly visible as in Meyer's figure, which I therefore suspect may be a little exaggerated as regards coloration.

I consider that the normal (by which I mean the most common) dress of the adult male of *P. apivorus* agrees with that described under this head by Mr. Sharpe, except that, according to my observation, most adults of both sexes have all the underparts, from the upper breast downwards, more or less distinctly barred with transverse bands of white, alternating with brown of nearly the same tint as that of the mantle. Grey-capped males in this dress are figured in Buffon's 'Planches Enluminées' and in Gould's 'Birds of Great Britain.'

The normal plumage of the adult female is, in my view, that which corresponds with the male dress represented in these figures, except that the grey on the head is limited to the lores, and is more tinged with brown than in the adult male; there is, however, in the British Museum a specimen procured by Professor Meves at Encoping, in Sweden, and said to be a female, in which the entire sides of the head are grey, and the brown plumage on the crown of the head is suffused with a faint but perceptible greyish tinge. Canon Tristram also possesses a specimen, shot at Tunis in the month of November, and marked as a female, in which both the lores and crown of the head are grey. This specimen has a wing-measurement of 15·9 inches, the tarsus and middle toe *s. u.* being each two inches in length; it is evidently adult, and, if really a female, is probably a very old one.

The adult male described by Mr. Sharpe would seem, by what he says as to the coloration of the underparts, to be a bird of a similar complexion of plumage to the old white-breasted male from near Stockholm figured by Mr. Dresser. This phase of plumage both Mr. Sharpe and Mr. Dresser treat as normal in the old male; and I so far agree with them, that I do not recollect to have met with it in a female; but, on the other hand, I am disposed to regard it as less due to age than to partial albinism.

Mr. Hancock considers this plumage to be characteristic of "the adult male of the second or pale variety." Mr. Hancock's "adult male of first or dark variety" appears, from his description, not to differ materially from that which I consider to be the adult male in normal dress.

Adult females are not unfrequently darker, both above and below, than that phase of plumage which I consider the normal type; one of these darker females, known to be several years old, and obtained at Altenkirchen in Rhenish Prussia, is described and figured in Mr. Dresser's work. Having been enabled, by the kind permission of Mr. Dresser, to examine this interesting specimen, I may remark that his artist appears to me to have represented the dark markings on the breast of this female too much as spots, and not sufficiently as assuming, to a great extent, the arrangement of transverse bars of dark brown alternating with yellowish white.

Some specimens of *P. apivorus,* both adult and immature, but especially the latter, when in dark plumage, show indistinct traces of a blackish stripe on either side of the neck, commencing sometimes just below the corner of the gape, and sometimes rather lower down, and extending a little more than halfway down the neck; this malar stripe is interesting, as it is frequently much more strongly developed in the allied eastern species, *P. ptilorhynchus.*

I have notes of measurements taken by myself from thirteen specimens of *P. apivorus,* with the following results, viz. Wing-measurements from 15·1 to 17·5 inches, tarsus from 2·0 to 2·4, middle toe *s. u.* from 1·5 to 2·0.

The specimen which measures 17·5 inches in the wing, is the one from Fantee which I have previously mentioned, and which appears to be a nearly adult female; the other twelve examples have each a wing-measurement of less than 17 inches; and I therefore consider the figure of 17·2 inches, given by Mr. Sharpe as the wing-measure of an adult male, to be an exceptionally high one. Mr. Dresser gives the wing-measure of an old male as 15·8, and the tarsus as 2 inches, and the corresponding dimensions of an old female as respectively 16·2 and 2·1; these figures, I think, represent very fairly the usual average of size in this species.

In 'The Ibis' for 1875, at p. 102, mention is made of a remarkably large specimen of *P. apivorus,* shot by Mr. N. A. Severtzoff in Turkestan; but its wing-measurement, in the form usually cited, is unfortunately not given.

The geographical distribution of *Pernis ptilorhynchus**, the second species of this genus, though extensive, is less so than that of *P. apivorus*; its northern limit (excluding from consideration its alleged, but, I think, extremely doubtful occurrence in Japan, to which I have already referred) extends from the Punjaub westward as far east as the Philippine Islands*, and its southern from Ceylon to Java.

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* Mr. Sharpe spells this name as "*ptilonorhynchus*;" but it seems to me

P. ptilorhynchus seems to be quite as liable to individual variation as *P. apivorus*, the general character of the variations being, for the most part, very similar in the two species. Those occurring in *P. ptilorhynchus*, however, seem to include some slight modifications due to the effects of geographical distribution, which does not appear to be the case in *P. apivorus*.

The differences in the barring on the tail between immature and adult specimens is more marked and more constant in *P. ptilorhynchus* than in *P. apivorus*, and is referred to in the three principal descriptions which we possess of the changes and variations of plumage incident to this species, viz. those contained in the articles on *P. ptilorhynchus* in Mr. Sharpe's 'Catalogue,' in Mr. Hume's 'Scrap-Book,' and in Capt. Legge's 'History of the Birds of Ceylon.'

Mr. Hume, at page 336 of his 'Scrap-Book,' writes thus:—"The only marks by which I could certainly distinguish the older from the younger birds were:—first, that the older have two very broad well-marked dark-brown bands visible on the tail-feathers, and the space of paler brown enclosed between them is freckled and mottled with a lighter colour, but not barred, while in younger birds the tail is invariably banded, more or less plainly, with numerous pale, narrow, wavy streaks,

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that this alteration is incorrect. Mr. Sharpe refers to Stephens's continuation of Shaw's 'Zoology,' and also to Mr. Holdsworth's pages in the P. Z. S. for 1872, as cases in which the spelling of this word which he uses has been adopted; but this is a mistake, as both these authorities spell the name "*ptilorhynchus*," which, with the exception of the insertion of the letter *h*, is the spelling originally used by Temminck.

* Of three specimens which I have seen from the Philippines, I only know the exact locality of one, a female from Butuan, in the island of Mindanao, recorded by the late Lord Tweeddale in the P. Z. S. for 1877 p. 821.

besides two or more broadish* bands of darker brown, which broadish bands, however, are neither half the width, nor so well defined, nor so dark as in the old; and secondly, a very similar difference in the banding of the primaries beyond the emarginations. All other signs of age appear deceptive."

As an instance of abnormal variation in the barring of the tail, not very dissimilar to that which is sometimes met with in *P. apivorus*, I may mention that a specimen obtained near Calicut, and preserved in the Norwich Museum, agreeing generally with Mr. Sharpe's description of the "intermediate stage," but apparently an older bird, is remarkable for having the inner web of the outer pair of rectrices largely blotched with contorted dark markings, the other feathers of the tail being of the normal adult character.

Captain Legge describes the "young" plumage of *P. ptilorhynchus*, observed by him in Ceylon, as having the "throat and entire under surface, with under-wing and the edge above the metacarpal joint, pure unmarked white;" and the Norwich Museum possesses a young Malabar specimen (from its small size apparently a male) which agrees with this description; but it seems to me that in this species, as in *P. apivorus*, no invariable rule can be laid down as to the coloration of young birds, especially on the under surface. Thus Mr. Hume, at p. 331 of his 'Scrap-Book,' mentions "one quite young bird" as having "the whole head, neck, and underparts fawn-coloured, the throat and chin paler and unstreaked;" and Mr. Sharpe describes a young bird as having the "entire under surface of the body white, with distinct longitudinal shaft-lines of blackish brown, broader on lower throat and sides of the latter, and thus forming an irregular streak on those parts; under wing-coverts pure white."

Mr. W. E. Brooks, in a paper published in the 'Journal of the Asiatic Society of Bengal,' vol. xlii. pt. 2, has a note on this species at p. 243, in which he says:—"A young bird from the nest, which I once kept in confinement, had the breast of a rather light earth-brown, each feather having a black central stripe; . . . . the upper plumage was a very dark clove-brown; even in this young bird the crest was well developed."

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* In Mr. Hume's article "brownish," apparently by a misprint.

Mr. Hume, in continuation of the passage which I have already quoted from p. 336 of his 'Scrap-Book,' remarks:—"Year-old birds have, at times, the lores, cheeks, and face quite grey, while old birds are to be seen nearly white below, each feather with a conspicuous median stripe of the darkest brown; some young birds, too, are so dark a brown above as, in some lights, to appear almost black, while the old are often a mixture of pale brown and greyish."

The British Museum possesses a specimen from Kamptee, in Central India, which is not only as dark on the upper parts as is described by Mr. Hume in the concluding sentence of the above paragraph, but is equally so on the underparts, resembling the darkest phase of the immature *P. apivorus*; this specimen has grey lores, and a blackish crest a trifle over an inch in length. A similar bird from Malacca, but without grey lores and crestless, being apparently quite young, and probably not fully grown, was in the collection of the late Lord Tweeddale; this example shows slight traces of transverse bars on the abdomen; and both it and the dark bird from Kamptee have the three dark throat-marks strongly developed.

In reference to these throat-marks it may be well to observe that they appear to be at all ages a very variable character, sometimes being either partially or entirely absent, and when present being more extended and more strongly marked in some individuals than in others. The central or gular mark (which I have never met with in *P. apivorus*) is of more irregular appearance in *P. ptilorhynchus* than the two malar or side-stripes, being frequently wanting in specimens in which the latter are distinctly present; but, on the contrary, the gular stripe is never present (so far as I have observed) when the malar marks are absent.

Mr. Hume, in the exhaustive article in his 'Scrap-Book' on this species as observed in India, from which I have already quoted, describes in detail some of the variations of plumage incident to the adult birds and to those passing from immature to adult dress, adding the remark :—“ Almost every possible combination of the varying plumage and shades of colour of different parts above described may be met with.”

Captain Legge, in his article on this species in his ‘ Birds of Ceylon,’ gives particulars of a stage of plumage which he considers, and, I think, rightly, to be “ younger ” than the “ fully adult,” and states that it “ represents the generality of apparently adult birds killed in Ceylon.” The majority of Indian specimens which I have seen exhibit a plumage agreeing, more or less closely, with that thus described by Captain Legge, which appears to be also very much the same with that described by Mr. Sharpe as the “ intermediate stage.”

The almost uniformly coloured “ chocolate-brown ” or “ earth-brown ” plumage, with much grey on the head and throat, which is figured by Temminck in the ‘ Planches Coloriées,’ pl. 44, and which Mr. Sharpe and Captain Legge consider to be characteristic of the fully adult bird, is, I believe, a dress which is limited to birds of that age ; but whether these always attain it I greatly doubt, as I suspect that some specimens permanently retain a phase of plumage very much agreeing with that described by Mr. Sharpe as peculiar to the “ intermediate stage,” but exhibit nevertheless on the tail the markings indicative of adult age.

My late friend Mr. A. Anderson informed me that, according to his experience, the grey on the crown of the head in *P. ptilorhynchus* was (as, usually, in *P. apivorus*) a peculiarity of the adult male ; but the Norwich Museum possesses a specimen from the Punjaub with the grey on the head diffused both over the throat and on the crown, which has a wing-measurement of 17·2 inches, and is therefore almost certainly a female, and no doubt an old bird, the plumage agreeing with that of Temminck's plate to which I have already referred ; most probably, however, the occurrence of the grey crown in the female of this species is quite exceptional.

Specimens of *P. ptilorhynchus* from the more southern parts of India are scarce in the museums of this country ; but judging from the few that I have seen, I should not consider that they differ from those of Northern India. Mr. Hume, however, writes thus in his 'Rough Draft of Nests and Eggs of Indian Birds,' p. 55 :—"It is not improbable that the Bengal race may have to be separated from the Upper and Southern Indian one: in the former the crest would appear to be always well developed, and, according to Blyth, the iris red; whereas, while in the latter the crest is at best rudimentary, the iris is bright yellow. This refers to adults; in the young the iris is brownish red in the former, brownish yellow in the latter."

I have not myself observed any marked difference as to the length of the crest in specimens from different parts of India. The longest I have seen is that of the Punjaub adult female in the Norwich Museum, which measures 1·9 inch; I have seen a nearly adult male and female from Secunderabad with crests respectively 1·5 and 1·6 in length; and the adult bird in the Norwich Museum from near Calicut has a crest measuring 1·3.

Other Indian examples that I have examined from various localities have yielded the following results: viz. one from Madras, one from the Deccan, four from Nepal, one from the Himalayas, and one from "Northern India" have been destitute of any crest; I have found crests of less than an inch in length in one bird from Madras, in one from near Calicut, one from the Deccan, one from Darjeeling, one from Agra, and one from "Northern India," crests measuring 1·1 in one specimen from Kamptee and in one from Bengal, crests of 1·2 in length in two others from Kamptee, and a crest measuring 1·5 in a specimen from "Southern India."

With regard to the variation in the colour of the iris in *P. ptilorhynchus*, I may mention a dark-coloured short-crested specimen which was living some years since in the gardens of the Zoological Society of London [*], and which was recorded as from India, but without any more definite locality. This bird, when first received at the gardens, had reddish-brown irides, which, as it grew older, became cherry-red, and the late Mr. Blyth, whose attention I called to the circumstance, assured me that such was always the case in Bengal specimens.

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[*] This specimen was referred to by the late Mr. Blyth in 'The Ibis' for 1870, p. 160.

In reference to this subject, Mr. W. E. Brooks wrote to me in 1873 that all the specimens shot by him in Northern India "had reddish-brown eyes (a very red-brown), both old and young."

The Norwich Museum possesses an adult male obtained at Agra by Capt. G. F. L. Marshall, who has marked on the ticket attached to it "irides red."

An adult female from Secunderabad, which is also preserved in the Norwich Museum, is marked by the collector as having the irides "blood-red;" but in the case of the nearly adult male and female from that locality, to which I have already referred, and which were in the collection of the late Lord Tweeddale, the irides of the female were noted by the collector as "yellow," and those of the male as "bright yellow."

In Tenasserim and Burmah a variation in the colour of the iris of this species seems also to occur.

Mr. Hume, in 'Stray Feathers,' vol. vi. p. 23, mentions an adult male shot at Moulmein, in which the irides were dark brown; and the late Lord Tweeddale had another adult male, obtained at Tonghoo by Lieut. Wardlaw Ramsay, who had noted the irides as "burnt brown." On the other hand, Mr. Hume records in 'Stray Feathers,' vol. iii. p. 36, an adult female obtained by Mr. Oates in Upper Pegu, as having the irides "bright yellow."

Further to the east, the female from Butuan in the island of Mindanao, in course of transition from immature to adult plumage, recorded by Lord Tweeddale in the P. Z. S. for 1877, p. 821, and to which I have already referred, was noted by the collector, Mr. Everett, as having the irides "white." This is the only instance I have met with of a white iris in *P. ptilorhynchus*, though in the closely allied *P. apivorus* I have seen young birds with the irides so faintly tinged with straw-colour as to be very nearly white.

I have no information as to the colour of the iris in this species in any locality, other than those already mentioned, except Ceylon, in regard to which Captain Legge writes thus in his work on the birds of that island:—"Iris golden yellow, yellow mottled with brown, or yellow with a pale outer circle,

. . . never red as in the Bengal race. . . . *Young* . . . iris in some yellow, in others brownish yellow, sometimes with a dark inner edge."

This species appears to be, for the most part, a migratory visitor to Ceylon; and Captain Legge's observations as to the times and places of its arrival are curious and interesting: but some doubt still exists as to the countries from which it migrates to the shores of Ceylon; and the full elucidation of this question seems to require more complete data than we at present possess.

Some of the Ceylon specimens which I have seen are remarkable for the richness of the dark rufous-brown tints on the underparts, exceeding in this respect any I have seen from India. Those that I have examined have crests varying in length from 1·1 inch to 1·9.

Specimens from Burmah and Pegu, judging from the few that I have seen, and from others recorded by Mr. Hume, appear usually to have either no crests or but very short ones, the longest I know of being a Thayetmyo example, with a crest measuring 1·5, mentioned by Mr. Hume in 'Stray Feathers,' vol. iii. p. 36.

Further to the south, longer crests have in two instances been recorded: the specimen from Mergui, for which the late Mr. Blyth proposed the name of "*brachypterus*," considering that it might prove specifically distinct, is said to have had a crest 2·5 inches in length; and Mr. Hume, in 'Stray Feathers,' vol. vi. p. 24, mentions a Malaccan specimen in his possession with a crest 2 inches long, and adds, "the plumage is somehow different from and altogether blacker and intenser than that of any Indian specimen I possess or have seen."

I may also mention that the Norwich Museum possesses an immature specimen from Siam, which has only a slight, incipient crest, and another, apparently a little older, from Saigon, in which the crest measures 1·2; both these specimens resemble the majority of Indian examples of a similar age.

The southern range of this species extends to the islands of Sumatra, Borneo, Java, and Banka; but I have never met with a specimen from the last-named island, and will therefore only refer to those that have been obtained in Java, Borneo, and Sumatra.

Mr. Sharpe, referring to specimens from Java, writes thus, "Examples from the latter locality in the Leiden Museum appeared to me to be inseparable from Indian birds, but had enormous crests;" and he describes one of the Java specimens in the Museum as "changing from the tawny plumage to that of the adult with the grey face; it has . . . a black crest 3·7 inches long."

Professor Schlegel figures, on plates 25 and 26 of his 'Valk-Vogels,' six Javan specimems of *P. ptilorhynchus*, of which that represented by figure 1 of pl. 25 is (if I mistake not) the specimen referred to in Mr. Sharpe's description which I have just quoted; it is remarkable not only for the length of the crest, but also for the very bright rufous of the upper breast and throat, the same colour being equally conspicuous on the underparts of another Javan specimen, figure 2 on the same plate: if the rufous tints in these two figures have not been exaggerated by the colourist, they exceed in brightness those of any other examples with which I am acquainted.

An immature specimen in the Norwich museum from the neighbourhood of Batavia is of a much less bright rufous on the underparts than the two figures above referred to, and is destitute of any crest.

Three crestless Javan examples are also represented by Professor Schlegel (pl. 25. fig. 3, and pl. 26. figs. 1 & 2); they are in different stages of plumage, and do not appear to differ from the corresponding phases of coloration in Indian specimens.

Figure 3 of pl. 26 represents an adult bird, like the grey-headed uniform adults which are frequently met with in India, and possess a fully developed black crest.

I may add that in an adult Javan specimen in the Derby Museum at Liverpool the crest measures only 1·1 inch in length, showing that in Java, as elsewhere, the length of the crest is a very variable feature.

The only example of this species which I have seen from Borneo was obtained at Bandahan, in that island, and is in the possession of Canon Tristram, to whose kindness I am indebted for an opportunity of examining it. This specimen much resembles the adult bird from Java described by Mr. Sharpe and figured by Prof. Schlegel*, to which I have already alluded; it has, however, a shorter crest, measuring only 1·9; and the rufous on the sides of the neck and on the breast is less bright than is represented in that figure, from which it also differs in having the buffy white marks on the abdomen more in the form of bars, alternating with indistinct transverse bands of two shades of brown, and in the pale space across the centre of the tail being darker towards the tip of the tail than towards its base. I may add that a portion of the shaft of the rectrices passing through this pale space is white.

A specimen very similar to this Bornean example has been kindly lent to me by Lieut. Wardlaw Ramsay, by whom it was recently received from the hill country of Western Sumatra; but this example has a crest measuring 2·3 inches in length, and is also remarkable for the unusual breadth of the dark subterminal bar on the tail, which measures 2·3 inches from its upper to its lower edge.

Des Murs, at pl. 13 of his 'Iconographie Ornithologique,' has figured the type specimen of Lesson's "*Pernis torquatus*," and states that "le voyageur Duvaucel l'a rapporté au Muséum d'Histoire Naturelle en Septembre 1821 de Sumatra." Judging from Des Murs's figure and description, this Sumatran specimen is an example of *Pernis ptilorhynchus* in the stage described by Mr. Sharpe as "intermediate," and, except for its somewhat longer crest, does not differ from many examples in a similar phase of plumage obtained in India.

Another, more fulvous, but crestless Sumatran specimen has been figured by Müller and Schlegel in Temminck's 'Verhandelingen &c.,' Aves, pl. 7: it is a young female, and is no. 6 in Professor Schlegel's list of the birds of this species in his 'Museum d'Histoire Naturelle des Pays-Bays,' *Pernes*, p. 3. Mr. Sharpe briefly describes this specimen, but does not mention that it was obtained in Sumatra.

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* Valk-Vogels, pl. 25. fig. 1.

A fourth Sumatran example*, and by far the most remarkable that has come under my notice from that island, was observed at Sockedana, in South-eastern Sumatra, and was described in 'The Ibis' for 1877, p. 286, by the late Lord Tweeddale.

When I examined this curious and unusually marked specimen, I noted a few details respecting it which are not referred to in Lord Tweeddale's description, and which, I think, may be worth recording as supplementary to it. The black plumage of the head, except the dark grey lores, and also of the back and sides of the neck, is varied by the feathers having pure white bases; the dark brown of the mantle shows three distinct shades of that colour disposed in transverse bars on each feather; the feathers of the upper tail-coverts have the bases white, succeeded by a dark brown bar, then by a very narrow white one, next by one of light brown, and after that by a subterminal one of dark brown, followed by a narrow white tip; the whole of the under surface posterior to the upper breast (except the flanks) is regularly and transversely barred, as low as the vent, with alternate bands of brownish black and of white, the latter below the breast being tinged with buff; below the vent, and somewhat higher on the flanks, the dark transverse bars become broader than those which are buffy white, and this disparity gradually increases down to the tips of the under tail-coverts; the white bars on the under wing-coverts assume the form of two pairs of spots on each of the feathers next the primaries. The pattern of the markings on the under surface of this specimen shows a remarkable resemblance to the corresponding markings in *Pernis celebensis*; but the transverse abdominal bands are considerably broader than in that species. Lord Tweeddale gives the length of the crest in this specimen as "about two and a quarter inches." I made it a trifle less, viz. 2·1.

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* In referring to this specimen, I cannot refrain from alluding, with great regret, to the loss of two kind and valued friends of mine, the late Mr. E. C. Buxton, by whom it was obtained in Sumatra, and the late Lord Tweeddale, by whom it was described in the pages of 'The Ibis,' both of whom have been removed from amongst us since the publication, in 'The Ibis,' of Lord Tweeddale's paper on Mr. Buxton's Sumatran collection.

As I have already mentioned, I have only had an opportunity of examining three specimens of *P. ptilorhynchus* from the Philippine Islands. Of these, one is an immature bird in the Derby Museum at Liverpool, respecting which I have the following note:—"Breast cinnamon, with strong dark shaft-marks; abdomen and thighs cinnamon, crossed with white; mantle dark brown, with the feathers slightly edged with light brown; length of crest 1·2."

Another is the female from Butuan, in the island of Mindanao, which was described by the late Lord Tweeddale in the P. Z. S. for 1877, p. 821; this specimen, which is in process of change from immature to adult dress, has a crest measuring 1·1 in length.

The third, which is preserved in the Norwich Museum, has a crest of very similar dimensions, measuring 1·2. In this specimen the upper surface, wings, and tail resemble the darker-complexioned Indian examples; the grey on the head is confined to the sides only, and is tinged with brown on the ear-coverts; the throat shows the gular and two malar stripes distinctly marked in black, the interspaces being buffy white with narrow dark shaft-marks to each feather; the feathers of the upper breast are brownish black, with cinnamon-brown bases and edges; the remaining underparts, including the under wing-coverts, are cinnamon-brown, varying a little in the richness of the tint, and with narrow dark shaft-marks on the feathers of the lower breast, which are also transversely marked with very narrow bars of two shades of brown; the front tertial feathers are narrowly barred and also tipped with brownish white, and the under tail-coverts more broadly so.

It may be desirable to add a few words as to the dimensions to which *P. ptilorhynchus* attains in various localities. I have notes of nineteen Indian specimens measured by myself.

Of these the lowest wing-measurement is 15·4 inches, in one specimen; the wing measures between 15·4 and 16 in six, between 16 and 17 in eight, between 17 and 18 in three, and above 18 (viz. 18·1) in one. The smallest length of the tarsus in this series is 1·9 inches, in one specimen; the length is 2 in twelve, 2·1 in five, and 2·2 in one. The middle toe *s. u.* measured 1·9 inches in three specimens, 2 in seven, 2·1 in five, and 2·2 in four.

The largest male in the above series (ascertained to be so by careful dissection) has a wing-measurement of 16·55, tarsus 2·1, and middle toe *s. u.* 2·0.

With regard to the dimensions of Indian females of this species, Mr. Hume writes thus in 'Stray Feathers,' vol. iii. p. 36:—"The females vary in length from 26 to 28; the smallest wing of any female I have met with was 15·75; and I have one before me, now, with the wing full 18."

Mr. Holdsworth, in the P. Z. S. for 1872, p. 415, and Captain Legge, at p. 91 of his 'Birds of Ceylon,' mention an opinion which I formerly entertained, that specimens of *P. ptilorhynchus* "from Ceylon are usually larger than those from India;" but I have subsequently ascertained that this opinion was ill founded, there being little, if any, difference between the average size of specimens obtained in India and Ceylon. For detailed measurements of Ceylon specimens I would refer to the account of this species in Captain Legge's work.

I have noted the following measurements, taken by myself from specimens collected in various continental localities to the east of the Bay of Bengal.

In the collection of the late Lord Tweeddale.	Wing.	Tarsus.
From Pegu (marked ♀)	14·8	1·8
„ Tonghoo	15·5	2·0
„ „	15·7	2·0
„ Malacca	17·5	2·0
„ „ (apparently a very young bird)	12·75	1·75

In the Norwich Museum.	Wing.	Tarsus.	Mid. toe *s. u.*
From Siam (marked ♀)	16·4	2·0	2·1
„ Saigon	16·9	2·0	2·0

Mr. Hume, in 'Stray Feathers,' vol. iii. pp. 36, 37, gives the measurements of three small females from Thayetmyo, and adds, "Taking the dimensions of these three females, there can, I think, be no doubt that the Thayetmyo race is considerably smaller than the Indian; but I cannot say that it seems to me to be entitled to specific separation."

Mr. Hume is disposed to identify these small Thayetmyo birds with *Pernis brachypterus* of Blyth. This view is probably correct; but, at the same time, it should be borne in mind that Mr. Blyth stated that, in the specimen for which he proposed the specific name of *brachypterus*, the "primaries were not fully grown" (*vide* 'Journal of the Asiatic Society of Bengal,' extra no. for August 1875, p. 60).

The following are measurements which I have taken from various insular specimens of *P. ptilorhynchus*.

	Wing.	Tarsus.	Mid. toe *s. u.*
From Java, in the Derby Museum, Liverpool	17·8	2·0	2·0
From near Batavia, Java, in the Norwich Museum (marked ♂ by the collector, Dr. Bernstein)	17·4	2·2	2·3
From South-Eastern Sumatra, in the collection of the late Lord Tweeddale	17·0	2·2	2·1
From Western Sumatra, in the collection of Lieut. Wardlaw Ramsay	17·3	2·0	2·2
From Borneo, in the collection of Canon Tristram	17·1	2·2	2·0
From the Philippine Islands, in the Derby Museum, Liverpool	16·6	2·0	2.0
From the Philippine Islands, in the Norwich Museum	16·0	1·9	1·9
From Butuan, in the Island of Mindanao, in the collection of the late Lord Tweeddale (marked ♀ by the collector, Mr. Everett)	15·5	2·0	2·0

The third, and only other known, species of the genus *Pernis* is *P. celebensis*, peculiar to the Celebes islands, and remarkable for the extraordinary similarity of its markings and coloration to the adult (but not to the immature) plumage of *Limnaëtus lanceolatus*, the powerful Hawk-Eagle, which is also restricted to the Celebes group. This species does not appear to be subject to individual variations of plumage, like its congeners *P. apivorus* and *P. ptilorhynchus*; and, judging from the few specimens I have seen, the immature dress differs from the adult but very slightly, if at all; probably, however, there will be found, on comparison of a sufficient series, some little difference at different ages in the markings of the tail and quill-feathers of the wings. The head, so far as I have observed, is dark grey on the sides only, and chiefly on the lores. Some specimens are crested, others are not so; the longest crest I have seen in this species measured 2 inches, and was on a specimen in the possession of the late Lord Tweeddale.

On comparing the dimensions of four specimens, which I have measured, with those furnished by Mr. Sharpe, I find that in *P. celebensis* the wing-measurement varies from 14·1 to 15·5 inches, the tarsus from 1·9 to 2·25, and the middle toe *s. u.* from 1·75 to 2.

XVII.—*Note on Sumatran Specimens of* Accipiter stevensoni *and* Scops lempiji. By J. H. Gurney.

In the preceding article I have referred to a specimen of *Pernis ptilorhynchus*, kindly lent to me by Lieut. Wardlaw Ramsay, who received it in a collection from the hill region of Western Sumatra. The same collection contained two specimens of *Accipiter stevensoni*, a species which, I believe, has not previously been recorded from Sumatra: one of these is an adult male, closely corresponding with the type specimen in the Norwich Museum; the other I consider to be an immature female, though it was marked by the collector as a male.

The collection also contained a specimen of the large race of *Scops lempiji*, noticed by me at p. 471 of 'The Ibis' for 1879. This specimen is slightly smaller than the two Sumatran examples there recorded, and is somewhat less thickly feathered on the lower part of the tarsus; the contrast between the dark and light portions of the plumage is also more marked, especially on the primaries; its measurements are, wing 6·8 inches, tarsus 1·5, middle toe *s. u.* ·9.

XVIII.—*Ornithological Letters from the Pacific.* No. II.*

By Otto Finsch, Ph.D.

Taluit (Bonham), Marshall Islands,
September 20, 1879.

We left Honolulu on board the Hawaiian bark 'Hawaii,' and arrived here on the 21st of August, after having been nearly wrecked as we entered the passage into the lagoon on the preceding evening. Apart from this incident the voyage was very calm and slow. We had but gentle breezes, and were delayed for some time in the doldrums, between 7° and 5° N. lat. During our passage we only sighted land once, on the 16th of August—the Milli or Mulgrave's Islands, which group is only about 350 sea-miles distant from this.

During the whole voyage bird-life was very scarce, as was animal-life in general. The dredge brought up nothing but a few very small zoophytes; and no shark or any other big fish was seen until we reached this group. Flying-fishes were sometimes numerous, but for days together not a single one was observed.

The number of specimens and species observed in ornithology was very small; but I think I may venture to give some of my notes on them from my diary.

July 30th. One *Puffinus*, first species (black above, white underneath); one, second species (brown, paler underneath); one *Procellaria*, first species (uniform sooty brown).

July 31st One *Procellaria* (same species as yesterday); two *Phaeton* (*æthereus*); one *Sterna* (? *lunata*); in the evening, late, a *Sula* (uniform brown; certainly *S. fusca*).

August 1st. Twice a Tropic-bird (*Phaeton æthereus*); one *Sula*.

Aug. 2nd. Four *Phaeton æthereus*; one *Sula cyanops*; one *Procellaria*, first species (brown, white underneath).

Aug. 3rd. One *Procellaria*, first species; one *Phaeton*; in the distance one *Tachypetes* (the most elegant and Eagle-like flyer of the ocean).

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* For No. I. see 'Ibis,' 1880, p. 75.

Aug. 4th. In the morning four *Phaeton æthereus.*

Aug. 5th. In the morning three Tropic-birds; one *Procellaria,* second species (uniform sooty); *Procellaria,* first first species.

Aug. 6th. No birds.

Aug. 7th. Observed one *Puffinus* at a very great distance.

Aug. 8th. No birds.

Aug. 9th. One *Procellaria,* third species (dark, a white mark on the wing seen from above); two *Puffinus,* third species (uniform black).

Aug. 10th. A single *Phaeton.*

Aug. 11th. This day we did not count, as we crossed the 180th meridian east.

Aug. 12th. One *Procellaria,* fourth species (dark brown, white underneath, a white cross mark on the wing).

Aug. 13th. One Booby (*Sula cyanops*).

Aug. 14th. The first land-bird (? *Actitis incana*), near to the vessel.

Aug. 15th. One *Sula fusca.*

Aug. 16th. We approached the Milli or Mulgrave group within about 20 miles, but saw only a single *Puffinus* at a great distance.

Aug. 17th. Two *Phaeton flavirostris.*

Aug. 18th. Although the nearest land (Milli) is only about 23 miles distant, only two land-birds (*Actitis incana*) made their appearance.

Aug. 19th. Except a single land-bird (*Actitis*), no other bird seen.

Aug. 20th. In sight of Taluit or Bonham Island. Near the surf a great number of Noddies (*Anous melanogenys*) were hovering about over the water.

As mentioned above, on account of the bad management of the pilot, the ‘Hawaii’ had to anchor in the passage, so that we did not reach land until the afternoon of the 21st of August, when we were heartily welcomed by our countryman Mr. F. Hernsheim, whose firm has a large establishment in this island, as well as on many others in Micronesia and Melanesia.

During the month we have stopped in Taluit I have had, on account of other work, very little opportunity of collecting birds myself; but I have sent out native hunters, who are very well acquainted with the animal-life generally, to collect. As might have been expected, the avifauna of these low coral islands is very poor. Along the beach one observes in small numbers *Anous melanogenys*, and a few examples of *Gygis candida*, *Actitis incana*, and *Ardea sacra*. Of the last-named bird I noticed dark ones in pairs, and dark ones paired with white-spotted individuals. They are now in moult; and so are *Strepsilas interpres* and *Numenius femoralis*.

Of both the last-named species I got specimens, caught by hand, having lost all their primaries. All the Turnstones were still in their summer plumage. Besides these I got *Anous melanogenys* and *Sterna melanauchen*, both in moult, *Charadrius fulvus* and a young *Carpophaga* which had just left the nest, apparently *C. oceanica*. Twice I have observed a *Eudynamis*, making the total number of birds received up to this time ten; but a native chief has furnished me with the names of sixteen species known to occur here.

I hope shortly to leave this island for the west; but there being no regular means of transit, I am quite unable to say where I shall go first or when.

XIX.—*Notes on the Avifauna of the Loyalty Islands.* By Edgar L. Layard, C.M.G., F.Z.S., &c., H.B.M. Consul, and E. Leopold C. Layard, Vice-Consul at Noumea.

The following "Notes" on the avifauna of the Loyalty Islands are written to replace a similar paper, unfortunately lost, which was transmitted to the care of our kind coadjutor Canon Tristram in October of last year, together with the collection of specimens on which he has founded his "Notes" at page 180 of the volume for 1879.

Fortunately Canon Tristram was enabled, having the specimens and our letter, to publish our new discoveries, and point out the specialities we desired; and we owe our best thanks to the Editors of 'The Ibis' for the charming and life-like plates of several of our novelties.

With the aid of notes made on the spot, we will now endeavour to give an idea of the ornithology of the Loyalties; but we must beg the indulgence of our readers if the freshness of descriptions written at the time should be wanting.

We must refer our brethren of the B. O. U. to the pages of the 'Field' for a full description of Lifu*. Suffice it to say, it is one of a group of islands to the eastward of New Caledonia, and about one third of the distance between it and Tanna, the nearest of the New Hebrides. In shape it is something like the chess-piece called the "knight"—a broad lump of land for the base, then a long neck, and finally a head-shaped piece. On this last, just under the chin, is situated the mission-station and village of Kepenché, where we stayed and collected. The whole of the island is flat, and mostly covered with fine forest. It is between forty and fifty miles long by half as much in breadth, and rises gradually in some parts to about 200 feet above the sea, from which it has been uplifted by successive upheavals, evidences of which are very apparent in the parallel lines of the waterworn cliffs. The whole island, according to the information we gathered, is formed of recent limestone, or altered coral, crystallized probably by heat below the surface of the water. The rock is honeycombed in a most remarkable manner; and many existing corals, madrepores, and shells are embedded in it. Vast caverns—bubbles done in stone, exist all over the island, some known and visible, more unknown, save by the hollow sound beneath one's feet. All the water used is obtained from these, or from wells dug in the rock, through which water filters; it is therefore all more or less brackish.

To the north lies a group of islands chained together by an encircling reef, known by the name of Uvéa. This, we learnt, was a great home of sea-fowl. To the south is another island, Maré, a solid block of land, which possesses, as we now know, a peculiar Blackbird, *Turdus mareensis*, nobis (Ibis, 1879, p. 472).

Pine trees crown most of the taller headlands, such as the bluff of Nikitipu (lit. "the ship in sight"), near Kepenché; but the forest generally is of the ordinary timber of New Caledonia, the ground beneath, if not carpeted with ferns and lycopods, bare of vegetation and easily traversed.

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* See E. L. Layard's "Zoological Notes from New Caledonia," in the 'Field' of Dec. 28, 1878 (vol. lii. p. 828).

Having thus described the ground, let us now particularize the species obtained, or seen, by us in the two trips made (one by each of us) to Lifu. L. L. was on Maré for a few hours, but not long enough to do any work. We hope some day to be able to work it and Uvéa in a thorough manner; but the difficulty of locomotion precludes our visiting many localities that we much desire to see. Some day also we hope to reach the "Isle of Pines," where, we hear, birds are abundant.

1. Urospizias approximans (V. & H.).

Not uncommon; several specimens in various stages of plumage were procured. Canon Tristram remarks (*loc. cit.*) that "if the sexes are correctly marked, [our] examples are considerably smaller than specimens from Tasmania in length of tarsus, tail, and wing." We can only say that the sex of all our specimens is carefully determined by us, a magnifying-glass being often used for this purpose, and that we have one solitary very old female fully as large as any described from Australia.

These birds, in Lifu, are a great scourge to the hen-yards; here, on New Caledonia, we have chiefly found reptiles in their stomachs. We have lately (August 23, 1879) obtained a young one just able to fly. Some of our young specimens from Lifu are so singularly rufous that we at first thought we had a new species. Native name "Wakoon" or "Uzu."

2. Strix delicatula, Gould.

A single specimen was brought to us alive, out of which the captor had pulled all the wing-primaries, to adorn his beautiful woolly head! He was very indignant when we would not buy the bird at his price, but finally consoled himself by saying it would make good "kai-kai" (food), and carried off his victim blinking and snapping all round! Lifu, "Méa;" Maré, "Mené."

3. STRIX NOVÆ-HOLLANDIÆ, Steph.

In the Lifu collection alluded to in a previous paper, appeared a solitary specimen of this bird. From the "make up" of the skin, having restuffed it, we are now sure it is a genuine Lifu production, though at first we doubted it.

4. COLLOCALIA UROPYGIALIS, G. R. Gray.

The White-bellied Swiftlet is the common species in Lifu, where it is called "Phiphica." It breeds in the caverns hollowed out by the sea in the limestone rocks. One such cavern is not far from the "Residency;" into this a man may wade at low tide a considerable distance. The Swiftlets were not breeding in September.

5. COLLOCALIA LEUCOPYGIA, Wall.

The Grey-bellied Swiftlet, though noted by both of us, is far more rare in Lifu than the previous one. This, we presume, arises from the fact that it is not so partial to the forest, but prefers open grass-country. The natives do not discriminate between the two species.

6. COLLOCALIA CINEREA (Gmel.).

Only one specimen of this rare species fell under our notice. E. L. L. was walking one morning along the Yasso road; a Swiftlet came skimming along towards him, almost touching the ground. As it approached, E. L. L. noticed its large size; but before he could get a shot at it, the bird turned off at right angles into the bush, affording a full view of its uniform back and rump. Though the road was traversed for several mornings in hopes of again seeing the bird, it never reappeared. Recent letters from L. L. show it is not uncommon on Vaté, New Hebrides, where he procured it before.

7. HALCYON SANCTA, V. & H.

Not uncommon. Lifu, "Chichiaté;" Maré, "Théthé."

8. MYZOMELA LIFUENSIS, Tristram, Ibis, 1879, p. 186.

This new species entirely replaces *M. caledonica*, Forbes, on Lifu, where it is called "Thulumaddey' (on Maré a similar or closely allied species is called "Wassissichou"). It is found, but not at all commonly, equally in the dense woods and native gardens, eagerly plunging its long bill into the flowers of the forest-trees or the bunches of banana-blossoms. One shot had its head so covered with red pollen as to appear for a moment, until the colour came off on our fingers, a new species! We subjoin the colour of the soft parts:—Bill black; legs and feet very dark brown, with pale yellowish soles; iris dark brown. It has a loud shrill note.

9. GLYCYPHILA SATELLES, Tristram, Ibis, 1879, p. 185.

Our reverend friend must stand the full brunt of the battle in describing the Lifu *Glycyphila* as a new species! As far as we can see, we cannot separate the birds from New Caledonia and Lifu into more than two species, *G. fasciata* (Forster) and *G. chlorophæa* (Forster). Under the last name we think all the species proposed by Gray and others must be placed, as the differences are due to age, sex, and season. We have slaughtered so many that our conscience pricks us, though we have faithfully skinned every bird. In measurements and coloration hardly any two are alike.

G. fasciata does not exist in Lifu. The species found there is called "Sissi."

10. PHILEMON LESSONI, G. R. Gray.

Decidedly scarce in Lifu, where it is called "Kuchalu," and on Maré "Kutti." It occurred to both of us, but very sparingly.

11. ZOSTEROPS INORNATA, Tristram, Ibis, 1878, p. 259.

The two "White-eyes" of New Caledonia are entirely replaced on this island by three totally different species—one probably the largest, another the smallest, and the last the prettiest species of this extensive genus!

The species under consideration is the giant of the tribe; it may be equalled by the Lord-Howe's-Island bird; but that we have not yet seen. We can add nothing to the information conveyed in our letters quoted at pages 186, 187, except the native name, "Cinnaming" (Maré, "Wāsisi'), and the colours of the soft parts:—Upper mandible and point of lower dark corneous, base of lower whitish; legs and feet pale salmon-colour; iris dull crimson-brown. Length in the flesh 6″.

It haunts the forest, chiefly frequenting the high trees; indeed we never saw it much in the gardens. Those caught by the boys with their snares (see 'Field') were all captured in or near the forest. Note like that of a *Pachycephala*.

12. ZOSTEROPS MINUTA, Layard, Ibis, 1878, p. 259.

This pretty minute species was found to be very common, and easily distinguishable by its bright colour, and especially the white spot on the flank, which is not enough shown in the plate (Ibis, 1879, pl. iv.). It is called "Watchu-mandra," and on Maré "Washosso." They are frightfully destructive to fruit of all kinds, and travel in large flocks. Iris drab; bill corneous, base of lower mandible whitish; legs and feet plumbeous brown. Length 4″ 3‴.

13. ZOSTEROPS MELANOPS, G. R. Gray.

This lovely species was brought in among the first batch of "White-eyes" caught by the native boys; but though I offered a special price for them, and devoted several days entirely to pursuing them, very few were obtained. It moves about singly or in pairs; and my little native companion, Wanapo (otherwise "Puss-in-boots"!), could always distinguish it by its voice, which he imitated by a single high piercing whistle, followed by a low "churring" note, made by blowing on the edge of a leaf. The "Ehatahou" would then generally show itself in some dense bush, and come to grief. It did not occur to L. L., and must be rare.

Length 5″. Iris yellow or brown-drab; bill corneous, lower mandible whitish; legs and feet pale greenish brown. It is the most elegant of all the White-eyes with which I am acquainted (E. L. L.).

14. GERYGONE FLAVOLATERALIS (G. R. Gray).

Found sparingly, not nearly in such abundance as in New Caledonia. Native name "Fitchikoo." Not known to the Maré boys.

15. TURDUS PRITZBUERI, Layard, Ibis, 1878, p. 254; Tristram, Ibis, 1879, p. 187, pl. v.

The New-Caledonian *T. xanthopus* does not exist in either

Lifu or Maré. In the former it is replaced by the small but handsome species under consideration, in the latter by a still smaller species, *T. mareensis*, L. & T., newly described in 'The Ibis' (1879, p. 472).

T. pritzbueri is a most shy and wary species, and occupied our native hunter in his "nature's garb" all his time to steal on them. The least snap of a twig or rustle of a dry leaf, and away goes the suspicious quarry! Some idea of the wariness of the allied *T. mareensis* may be inferred from a letter from our kind correspondent, the Rev. Mr. Jones, in which he says that, though he has had three men out for five days hunting especially for them, he has only been able to get one specimen! We succeeded better with *T. pritzbueri*; but it was always difficult of approach.

We found males and females in full breeding-στοργή in the middle of August, and also fully fledged young birds in the spotted plumage of the well-known European bird. Total length in the flesh 8″ 9‴. Iris darkish drab; bill and feet bright orange-yellow, as is the eyelid, which unfortunately is not properly coloured in the Plate, one result of the unlucky loss of our previous paper.

The thighs of this bird are very stout and powerful, enabling it to progress over the ground in huge bounds. If a bird is only broken-winged, he is pretty sure to escape in the underwood. It is called "Wathitha," the Maré bird being known under the appellation of "Wassassé" on its own island. They feed on insects and worms, and are very fond of searching about the deserted native plantations. We never heard them sing; but they invariably utter the well-known metallic *chinck, chinck, chinck,* when hurriedly taking flight on being alarmed.

16. Artamus melaleucus (Forst.).

The Wood-Swallow is found sparingly in small parties, and occurred to both of us. Lifu, "Khat."

17. Myiagra luguieri, Tristram, Ibis, 1879, p. 188.

This and the next species, *M. intermedia*, L. & T., replace *M. viridinitens* and *M. caledonica* on Lifu. In habits and note they are similar, but may at once be separated from them and the two New-Hebridean species by the coloration of the tail, forming, as pointed out in Canon Tristram's previous paper and in the 'Field,' most interesting intermediate links.

Our friend informs us that doubts are entertained as to the distinctness of the *black-* from the *red-breasted* species. All we can say is that we have carefully determined the sex of numbers of all the species from New Caledonia, Lifu, Tanna, Vaté, &c. &c., procured at all seasons; I have found both males and females of *each* in full breeding-*στοργή*. We would also remind the doubters that in Samoa the only species known (the *M. albiventris* of Peale) is a *red-breasted* bird, closely resembling those under consideration, and a *black-breasted* one is never seen there.

Length in the flesh 6″ 9‴. Lifu, "Chichiwhat;" Maré, "Wanirekkoe." We have named this species after M. Luguier, the French "resident" or governor of the Loyalty Islands.

18. Myiagra intermedia, Tristram, Ibis, 1878, p. 189.

In habits and note similar to the preceding, and goes by the same name among the natives. They both frequent open forest, darting upon minute insects, whether on the wing or at rest on leaves. This red-breasted species is not so common as the black one; and neither of them is very abundant. They betray their presence by a loud stridulous cry, and have a curious tremulous motion of the tail, which is generally shown on alighting on a spray, after a forage in search of their prey.

19. Rhipidura verreauxi, Marie.

20. Rhipidura bulgeri, Layard.

Both these Fantails were observed, sparingly, on Lifu, where they are much rarer than on New Caledonia. The former is called "Eniyana" (restlessness), from its continual motion. We could not find any name for the smaller bird.

21. Graucalus lifuensis, Tristram, Ibis, 1879, p. 190.

This Palm-Crow, as it is called, is at once distinguishable from its congener on New Caledonia (*G. cinereus*) by its hue. The instant we shot our first specimen we perceived the difference in tint, even without a bird from the larger island to compare with it. The bill is corneous, lower mandible the palest; legs black; soles of feet dull yellow; iris pale yellow. Length 14″. It preys upon *Gryllæ* and such like insects, Coleoptera, ants, &c., also on fruit. We found it equally among the cocoa-nut groves and the high forest-trees. The natives say its favourite food is the large locust (*Locusta imperialis*) that devours the leaf of the cocoa-nut tree. They call it "Halou," and say that it does not exist on Maré, where the locust abounds. On suggesting that it might be easily introduced, we were told that the inhabitants preferred the insect, the female of which, a fly of six or seven inches length, and when in season full of eggs the shape, size, and colour of green oats, is much sought after as an article of food, and said, even by a white man, to be "delicious," resembling potted shrimps!! It probably never existed on Maré, as the natives of that island have no name for it.

Canon Tristram alludes to a *Graucalus* from Mallicolo Island, New Hebrides, obtained by L. L., as differing in tint from *G. cinereus*, being *greener*. Lately, when looking over our collections, we placed a specimen from "Espirito Santo" alongside the latter, and were struck by the *lighter* and *bluer* tint prevailing over it. We suspect these are all local races, gradually changing into what will hereafter be good species.

22. LALAGE MONTROUSIERI, Verr. et DesM.

Found equally on Lifu and Maré, and called respectively "Wanunu" and "Kaddi."

23. PACHYCEPHALA LITTAYEI, Tristram, Ibis, 1878, p. 255; Tristram, Ibis, 1879, p. 190, pl. vi.

Peculiar to Lifu, to the total displacement of *P. moriariensis* and *P. assimilis*, Verr. & DesM. These two, and also our two New-Caledonian *Eopsaltriæ* (*E. caledonica* and *E. flavigastra*), are conspicuous by their absence! This fine species, far exceeding in size those of the main island, is found only in the forest, keeping chiefly to the undergrowth, which it traverses in search of its favourite food, snails of the genus *Helicina*, which were never absent from the stomachs of those killed by us. The female is far scarcer than the male, or, rather, is more difficult to find. The latter is so pugnacious that, on its call being imitated, which it is easy to do by a whistle, it instantly flies to the sound to attack its fancied rival. In this way E. L. L. once shot four in a little patch of wood not twenty yards square, cut off from the main forest by cross roads. In this we concealed ourselves and commenced calling, when the challenge was taken up and responded to on four different sides, and one after another the gorgeous yellow breasts succumbed.

It feeds on Coleoptera, small snails, flies, and ants, on which it darts while at rest on the underside of leaves or branches. Males were in full breeding-*στοργή* at the end of August; perhaps the females were sitting, and this may partially account for their scarcity. Length 7″ 10‴. Bill black; legs and feet purplish brown (in female fleshy brown); iris dull dark crimson. Native name "Thuthu." All our informants declared no such bird existed on Maré; and from its conspicuous colour and note, it could not fail to be noticed if it had been there.

24. APLONIS ATRONITENS, G. R. Gray.

We were very pleased to find this fine Starling in considerable numbers, replacing the New-Caledonian *A. caledonica*; which, however, we believe, does occur on the island sparingly, though it did not fall under our own observation, but was marked from Lifu in the old collection before alluded to.

It is called "Zeakheta" ("Koho" on Maré, if identical), and is partial to perching on the summits of tall dead forest-trees, roving in flocks, and feeding on berries of all kinds, especially those of the banian. Length 9″. Bill and legs black; iris orange. The young male resembles the female until the first moult. We have little doubt Mr. Gray described from a young bird, and that he and others have done so in more instances than one among these *Aplones*, and that all the species described from New Caledonia, viz. *A. nigroviridis*, Lesson, *A. viridigrisea*, Gray, *A. atronitens*, Gray, *A. caledonica*, Bp., *A. striata*, Gmel., and *A. pacifica*, Forst., are founded on the sexes and seasonable changes of two species. Gmelin's name, if it can be shown to which species it refers, must have priority over *atronitens* of Gray, and *caledonica* of Bonaparte.

25. Erythrura cyaneifrons, Tristram, Ibis, 1878, p. 260.

This pretty species, which takes the place of *E. psittacea* of New Caledonia, is found about the native gardens, but very sparingly. It feeds on grass-seeds, and generally flies in small flocks or families of five or six or seven. It is very shy and wary, and on being pursued quits the spot and seldom returns to it. Length 4″ 9‴. Iris very dark brown; legs and feet brown; bill black. Has a shrill piercing note, like *E. psittacea*. Native name "Finifi."

Lieut. Richards, commanding H.M.S. 'Renard,' and L. L. found this species in Tanna, where L. L. also procured *Turdus pritzbueri*.

26. Cuculus bronzinus, G. R. Gray.

Occurred to both of us on Lifu, but is more often heard than seen. It is called "Zeug" We found young in the striped plumage and adults in full breeding-dress at the end of August. They feed on a reddish hairy caterpillar, and utter a shrill clear piping whistle.

27. Chalcites lucidus (Gmel.).

We had identified the species frequenting New Caledonia and Lifu with *C. basalis*, Horsf., being guided by Mr. Gould's 'Birds of Australia,' and having only a single New-Zealand specimen to compare with our birds. It will be interesting to clear up this point, as it may indicate the true range of the New-Zealand species. We have lately, in August and September, shot several specimens containing eggs ready for exclusion. A breeding female was obtained in Lifu on the 25th of August. The natives recognize its affinity to the preceding, and call it also "Zeug."

28. Trichoglossus massenæ, Bp.

Hearing much of a Parrot found in the interior of Lifu, we despatched a hunter expressly to procure it. He returned with half a dozen specimens of the species, which he called "Si-watta," a name, we think, taken from its cry. All declared that it was replaced on Uvéa by the crested species, *Nymphicus cornutus*, which they perfectly described, and called "Puggin," and they concurred in saying that neither of them was found on Maré.

29. PTILOPUS GREYI, G. R. Gray.

Very abundant on Lifu; in full breeding in August; eggs pure white (but *cf.* Ibis, 1876, p. 264, where Canon Tristram's correspondent sends eggs of a "dark cream-colour, darker than *Œna capensis*;" surely there must be some mistake here. Eggs ready for exclusion taken from birds shot here, in New Caledonia, are also pure white (E. L. L.). Native name "Pin," Maré, "Denné."

30. IANTHŒNAS HYPŒNOCHROA, Gould.

Not very common on Lifu, where designated "Mékketta," on Maré "Mécetché." Only found in the forest, feeding on banian and other berries.

31. CARPOPHAGA ÆNEA, G. R. Gray.

Our hunter, Cano, spoke much of a large Pigeon, which he accurately described and called "Puni," which we have no doubt was this species, several of which, labelled from Lifu, were in the old government collection, but so destroyed by moth as to be utterly unfit for placing in any cabinet. Cano stated that they were migratory, though a few were to be seen during the dry season, but utterly unapproachable (!), their sense of hearing being so acute that the least noise startled them; during the wet season the damp leaves would not rustle, and he could always get at them. He tried hard to secure us a single specimen, but failed.

September 22nd. We have just heard of a specimen having been killed yesterday close to Noumea; our informant, a young lad, especially noted the crimson bill and the *round knot* on it, which had attracted his attention, not having seen any thing like it before. He endeavoured to purchase it for us from the man whom he saw shoot it; but he would not sell it.

32. Chalcophaps chrysochlora, Gould.

Very common on Lifu, frequenting roads and open spaces. In rainy weather, the natives say, they quit the forest and feed only on the roads, to avoid the drops falling from the trees. At such times they snare them in great numbers, by means of nooses placed in the paths. They call them "Milli-malla," and on Maré "Naïnatha." They are said to be equally abundant there, and also on the Isle of Pines, whence we have seen large numbers brought up in baskets.

33. Charadrius fulvus, Gmel.

Said to be found in great numbers on the reefs at Uréa, but is scarce at Lifu, probably from the absence of suitable shores on which to feed.

34. Herodias novæ-hollandiæ, Gould.

Found sparingly along the shore, and called "Ketté-naugetha," *i. e.* the "Ketté of the salt water."

35. Herodias sacra (Gmel.).

E. L. L. saw, but did not obtain, a Heron which he identifies as of this species.

36. Limosa uropygialis, Gould.

Maré. The natives confuse this with the next species, and call them both "Thea."

37. Actitis incana (Gmel.).

At Kepenché the shore was not at all adapted for Waders; nevertheless both these species were obtained. The natives say the coral chain of Uvéa swarms with Waders and waterfowl.

38. Porphyrio vitiensis, Peale.

This is the "Ketté" of the fresh water, and is found sparingly on those parts of the island where the forest is replaced by grass. The natives say it never flies; they catch it with dogs.

39. Rallus pectoralis, Cuv.

40. Ortygometra quadristrigata, Horsf.

The natives spoke much of two other species of "Ketté" that they called "Thoin," affirming that they skulked in the grass, and could hardly be pushed to flight. On E. L. L. producing specimens of these two birds, they instantly recognized them with a shout of delight.

41. ANAS SUPERCILIARIS, Gmel.?

Ducks are sometimes seen, probably of this species.

42. STERNA GRACILIS, Gould.

Gulls and Terns were nearly absent from Lifu while we were there, but, as we were told, were in abundance on Uvéa, and sometimes visited Lifu in large flocks. They are all lumped together under the name of "Maal." We thought we made out

43. STERNA VELOX,
44. STERNULA NEREIS, Gould,
45. LARUS NOVÆ-HOLLANDIÆ, Shaw,

in the neighbouring seas. Of *Sterna gracilis* a young specimen existed in the old collection, marked from Lifu.

46. PHAETON RUBRICAUDA (Gmel.).

This bird, of which we saw several flying over the island, is called also "Maal."

47. TACHYPETES AQUILUS (Linn.).

Called "Wetté." Seen in company with the previous species. Said to come inland from Uvéa during tempestuous weather.

48. SULA PISCATOR, Linn.

A single specimen of this Gannet was driven inland a short time before the arrival of E. L. L., to whom it was presented as a "great curiosity," never having been seen before. It was skinned by the interpreter of the Residency, who had on a previous occasion watched L. L. preparing some birds. It is the only one that has fallen under our notice from these seas.

We should be ungrateful in concluding these "Notes" on the ornithology of the Loyalty Islands did we omit to record the kind hospitality of the Rev. Mr. Sleigh, the Protestant Missionary, and of Mr. Wright, a settler at Kepenché. Our time was spent under their sheltering roofs; and both were indefatigable in obtaining specimens for us, interpreting with the natives, and getting us the vernacular names. The latter were never recorded without severely testing their accuracy by examining several individuals.

Of the pleasant month we spent rambling amid the beautiful woods of Lifu, how we turned our good-natured friends' houses into "shambles," how we got shaken out of bed by earthquakes, &c. &c., are they not written in the pages of the 'Field' newspaper?

XX.—*Remarks on Dr. Gadow's Papers on the Digestive System of Birds.* By W. A. Forbes, B.A., F.L.S., Prosector to the Zoological Society of London.

Dr. Hans Gadow, who is already known as a worker at the anatomy of birds from his papers in the 'Journal für Ornithologie,' has lately published in the 'Jenaische Zeitschrift' an elaborate article on the anatomy of the digestive organs of birds*. This paper, in two parts, extends over more than 140 pages, and is illustrated with nine plates.

In the first part Dr. Gadow gives a descriptive account (without histological details) of the alimentary canal and its appendages—tongue, liver, pancreas, cæca, &c., as well as of the kidneys, which he strangely includes with these organs—in the various orders of birds, in large part based upon his own investigations. I cannot always agree with Dr. Gadow in his grouping of the various forms together, as, *e. g.*, including such different forms as Auks, Penguins, and Grebes in the same order, "Pygopodes."

For this part of his work Dr. Gadow seems to have examined a large number of birds; but it is to be regretted that he has apparently had no opportunity of investigating some of the most interesting forms, such as the Tinamidæ and Turnicidæ. Had Dr. Gadow been acquainted with the structure

* "Versuch einer vergleichenden Anatomie des Verdauungs-systemes der Vögel," I. Theil, Jen. Zeitschr. f. Wissenschaft., Band xiii. Heft 1, pp. 92–171 (1879); II. Theil, *tom. cit.* Heft 3, p. 339 &c. (1879).

of the former group, he would not, I think, have insisted so strongly on the absolute isolation of the "Ratitæ" from all other living birds*.

Dr. Gadow justly regrets the small amount of attention that has been paid of late years to the anatomy of birds, and particularly, as he says, to the digestive system. But he seems to be unacquainted with the work done lately in this country by Prof. Garrod, as in the list of papers quoted by him but two of that anatomist's are mentioned. Hence no account is given of some of the most peculiar variations that are known to occur in the alimentary canal of birds, of, for instance, the peculiar proventriculus and cæca of *Chauna* (though Dr. Crisp's paper on this bird is quoted), and of the extraordinary stomachs of the species of *Plotus*. No allusion is made to the tongue of *Nestor*; and the old statements as to the universal absence of a gall-bladder, or, at all events, its only exceptional presence as an individual variety, in the Parrots and Pigeons, are repeated.

In the second part Dr. Gadow commences with the different forms of the same organs throughout the series of birds. In a tabular statement of the correlation of the nature of the cæca to the nature of the food, *Phœnicopterus* is included as one of the "Fleisch u. Fische" eaters. But, according to Mr. Salvin and other authorities, the major part of the food of these birds consists of the vegetable matter that grows at the bottom of the lagoons which they frequent (*vide* Dresser, B. of Eur. pts. 75, 76). The length and width of the alimentary canal, the relative size of its various parts, the influence of the food on the canal as a whole, and the variations in its length in birds of the same species, both young and old, are then discussed. The concluding part of the paper is devoted to a description of the disposition of the convolutions of the intestines; and this is decidedly the most novel part of Dr. Gadow's work, previous accounts of this subject being very meagre.

Excluding the Ratitæ, Dr. Gadow distinguishes three chief types of intestinal arrangement. These he calls *Orthocœla, Plagiocœla* (or *Plagiobrochi*), and *Cyclocœla.*

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* "Dass aber .... Uebergänge der 4 noch lebenden Ratitenfamilien unter einander und *auch zu den Carinaten gänzlich fehlen*," tom. cit. p. 107.

In the first group (*Orthocœla*), in which he includes the Pygopodes, Steganopodes, Anseres, Tubinares, Erodii, Alectorides, and Rallidæ, the chief folds, which are from five to eight in number, are straight and parallel to one another and to the long axis of the body.

In the *Plagiocœla,* which includes only the Rasores, the two middle of the four chief folds form more or less horseshoe-shaped loops at their extremities, and the general direction of the intestines always forms, more or less, an angle with the long axis of the body.

In the *Cyclocœla* one or more of the chief folds are spirally coiled round their ends. This division includes some of the Grallæ, the Pelargi, Laridæ, Psittaci, Raptores, Columbæ, the Coccygomorphæ and Pici in part, the Cypselomorphæ, and the Passeres.

It is further subdivided into the *Telogyri*, in which only the terminal part of the fold is coiled, and the *Hologyri,* in which the whole fold is so disposed, these latter, again, being further divided into *Progyri, Mesogyri, Amphigyri,* and *Polygyri.*

But, judging from the forms associated together under some of these heads, the groups so named are eminently artificial. Thus, the Raptores are divided amongst the first three, and under the *Mesogyri* are included forms as various as *Astur, Melierax, Halcyon,* and *Phœnicopterus.*

The paper concludes with the inevitable phytogenetic table, showing Dr. Gadow's ideas of the lines of descent amongst birds. He holds that all the highest forms of each subdivision belong to the *Hologyri* or *Mesogyri,* the more primitive ones being *Orthocœla* or *Plagiocœla.*

The figures in the plates are chiefly devoted to showing, in a more or less diagrammatic way, the various types of intestinal convolution described in the text, and will be found very useful in elucidating Dr. Gadow's views.

In conclusion, it seems to me that, as it is a well-known fact that individuals of the same species vary, sometimes very greatly, in the length of their intestines, the stowing away of a greater or less amount of gut in a given space, the abdominal cavity, becomes simply a mechanical problem, and therefore that there is less help in forming a sound view of the mutual affinities of birds to be derived from the facts in this direction described by Dr. Gadow than from many other points, more complicated, and therefore less easily altered, in the structure of birds.

XXI.—*Descriptions of two new Species of Parrots and a new Pigeon from South America.* By George N. Lawrence.

[Mr. Lawrence has sent examples of these species to us for examination; and we have appended a few notes.—Edd.]

Chrysotis cœligena, sp. nov.

Front and lores of a dull yellowish orange; cheeks of rather a light sky-blue; feathers of the crown dull light yellow, ending with green; the feathers of the occiput and cervix are dark green, yellowish at base, and with the terminal edges blackish; back, wing-coverts, and upper tail-coverts dark green; tail-feathers dark green, all, except the two middle ones, having their ends for about an inch in extent of a dull pale yellow, with a wash of light orange-colour on the inner webs; the first primary is black, the others have their outer webs green for four fifths of their length, the terminal portions, with the inner webs, being black; the outer webs of the secondaries are green, with a speculum of bright orange-red, and terminating with deep indigo-blue, the inner webs are black; front edge of the wing with a wash of pale yellow; throat light green, with a wash of blue; breast and abdomen yellowish green, the feathers edged narrowly with blackish, on a side view the colour is bright verditer-green; upper mandible light horn-colour, with a reddish mark in front of the nostrils, the lower mandible is of a darker colour; feet blackish brown.

Length (of skin) about 13 inches, wing $8\frac{3}{4}$, tail 5, bill (along the curve) $1\frac{7}{8}$, middle toe and claw $2\frac{1}{4}$.

Hab. Guiana; Essequibo river.

This specimen was collected by Mr. A. H. Alexander of West Hoboken, New Jersey, in the winter of 1875–76.

This species is of a robust form, the bill and feet seeming large for the size of the bird; the speculum resembles that of *C. amazonica,* but it is of a rather lighter colour.

[There is an example of this Parrot now living in the Gardens of the Zoological Society of London. Sclater exhibited a drawing of it at the meeting on the 17th of February last. See P. Z. S. of that date. It is most nearly allied to *C. dufresniana.*—Edd.]

Brotogerys ferrugineifrons, sp. nov.

Front marked narrowly with bright ferruginous; the chin and the feathers adjoining the sides of the bill are of a dull light ochreous-red; upper plumage of a dark glossy green, brighter on the upper tail-coverts; tail-feathers of a rather lighter green than the back, with reddish-brown shafts; outer webs of quills green, the inner black; under wing-coverts dark green; inner edges of quills of a dull light bluish green; under plumage light green, with a yellowish tinge, and on the throat a wash of ochreous; bill dark horn-colour; feet light yellowish brown.

Length 8 inches, wing $4\frac{3}{4}$, tail $3\frac{1}{2}$.

Hab. New Granada, Bogota.

My friend Dr. O. Finsch recently spent a few days in New York, while on his way to explore certain islands in the Pacific. I availed myself of the opportunity to show him the two specimens above described; and he coincided with me in considering them to be new.

[This Parroquet is quite distinct from any American species with which we are acquainted. If its *habitat* is correctly given we think it must be new.—Edd.]

Melopelia plumbescens, sp. nov.

Forehead whitish ash, hind part of head dark ash, with a plumbeous tinge; back and wings of a warm dark ashy brown; rump and upper tail-coverts dark plumbeous; tail-feathers above coloured much like the back; underneath ashy, with a plumbeous tinge; quills dark brown, edged narrowly with whitish; chin pale plumbeous grey; a mark of clear plumbeous on each side of the chin, extending from the lower mandible; neck, in front and at the sides, with the upper part of the breast, like the back in colour, but a little lighter on the latter; lower part of breast, abdomen, and under tail-coverts of a paler brown, intermixed with light plumbeous; sides, under lining of wings, and axillars clear light plumbeous; bill black; feet reddish brown.

Length 9½ inches, wing 6½, tail 4½, tarsus $\frac{13}{16}$.

Hab. Guiana.

A single specimen of this Dove in my collection was obtained from Mr. Galbraith.

[Though apparently belonging to the same genus as *Melopelia leucoptera*, this Dove is very differently coloured. We should like to see collectors' specimens from a definite locality before giving a decided opinion about it.—Edd.]

XXII.—*Notices of recent Ornithological Publications.*

[Continued from p. 143.]

33. *Bogdanow's 'Birds of the Caucasus.'*

This volume being printed in Russian, we regret not to be able to say much about it. The scientific titles, being given in Latin, show that 323 species are enumerated as belonging to the Caucasian avifauna. The following species and subspecies seem to be new to science:—*Buteo menetriesi*, *Passer domesticus*, subsp. *caucasicus*, *Parus michalowskii*, *Pœcile brandtii*, *Ægithalus caspius*, *Picus poelzani*. Several generic terms, new to us, are also used, *e. g.* "*Salicipasser*" for *Passer montanus*, "*Plectrofringilla*" for *Passer alpicola*, Pallas, and "*Nigrilauda*" for *Alauda tatarica*.

34. *Ball's 'Jungle-Life in India.'*

[Jungle-Life in India, or the Journeys and Journals of an Indian Geologist. By V. Ball, M.A., Geological Survey of India. London: Thos. De la Rue & Co. 1880. 1 vol., 8vo.]

Mr. Ball's story of his life in the jungles of India will be read with interest by every naturalist. Many allusions to birds will be found interspersed in his narrative. The nesting-habits of the Nicobar Pigeon (*Calœnas nicobarica*), which was found breeding in large numbers on Balti Malve (Nicobar group), have not been previously observed. In the appendix are given some notes on the birds of the area between the Ganges and Godavari rivers, and on those of the Andaman and Nicobar Islands.

35. *Coues's American Ornithological Bibliography.*

[Second Instalment of American Ornithological Bibliography. By Dr. Elliott Coues. Bull. U.S. Geol. & Geogr. Surv. vol. v. no. 2.]

Dr. Coues's second instalment contains the titles of all ornithological works and papers specially relating to the Neotropical region, "all general and miscellaneous works, and all those upon particular species, genera, or families of birds, being excluded." Many most useful notes and comments are given, besides the names of newly described species, and of those figured. The titles are arranged chronologically; but an alphabetical index of authors and localities is added.

There can be no question as to the value of this most laborious and most useful piece of work, which seems to have been executed in the most conscientious manner.

36. *Deslongchamps on the Genus* Florisuga.

[Étude sur le groupe des Jacobines (Oiseaux-Mouches) et le nouveau sous-genre *Melanotrochilus*. Guide d. Naturaliste, 1880, p. 7.]

The new subgeneric name *Melanotrochilus* is proposed for *Florisuga fusca* (Vieill.).

37. *Dole on the Birds of the Hawaiian Islands.*

[List of Birds of the Hawaiian Islands. By Sanford B. Dole. Corrected from the Hawaiian Annual.]

Some kind friend has sent us this list, which we only previously knew of from what Dr. Finsch has said (Ibis, 1880, p. 80). Fifty-three species are mentioned in it, and several are described as new, viz. *Accipiter hawaii, Drepanis aurea, Fringilla anna,* and *Pennula millei. Pennula* is a new genus of Rallidæ, with rudimentary wings, of which the existence has been already spoken of by Dr. Gray (P. Z. S. 1862, p. 145). As the 'Hawaiian Annual' will not be generally accessible to ornithologists, we think it advisable to reprint the characters of the new species, except *Drepanis aurea,* which has been already described in this Journal (*anteà,* p. 80) by Dr. Finsch :—

Accipiter hawaii. "Io." 14 inches long. Dark brown above; throat dull white; breast mottled brown and white; dull white feathers on legs and abdomen. Legs feathered below tarsi. Strong back claws. Legs and feet light and scaly. Never before described. Confounded with *Strix delicatula* of Samoa and Fiji Islands in previous lists.

Sparrow-hawk. Similar to young *Accipiter rufitorques* of Fiji Islands. Habitat Hawaii, rare on the rest of the group.

Mounted specimen in Mill's collection, Hilo, Hawaii.

Drepanis rosea. "Iwipopolo." Not previously described. Similar to the latter (*D. coccinea*) in appearance, habits, and food. 6 inches long. Wings and tail dark brown; last secondaries white; upper and lower tail-coverts greenish yellow; general plumage bright scarlet, interspersed with masses of greenish-yellow feathers, mottled with black. Bill 1 inch, curved, white. Habitat whole group. Specimen in Mill's collection.

Fringilla anna. "Ulaaihawane." Not previously described. 5½ inches long. Bill short, straight. Toes, three front, one back. Wing-coverts and breast red; throat, primaries, and tail black; secondaries white; head grey, merging into white on the upper part of the neck, and grey, again, on the back. Habitat Hawaii. Probably belongs to the genus *Fringilla.*

This is a bird of remarkable beauty, its peculiar combination of colours producing a most harmonious and elegant effect.

Pennula millei. "Moho." Not previously described. 6½ inches long. Bill ¾ inch long, black, straight, sides compressed, curved at tip. Tail not visible. Wings rudimentary, hidden in the long, loose, hairy feathers. Plumage dark dull brown, ashy under the throat; feathers loose, hairy, long. Lower part of tibia naked. Legs long, set far back. Toes, three front, one back. Habitat uplands of Hawaii. Nearly extinct. Specimen in Mill's collection.

I feel confident that this remarkable bird belongs to the Rallidæ, but am unable to fix its place more definitely. It is the only bird which the natives call *Moho,* which word is nearly synonymous with the New-Zealand word *Moa*, which is their name for the gigantic wingless bird of that country. Regarding it as a new genus, I have taken the liberty of naming it as above, gladly thereby recognizing Mr. Mill's valuable services in preserving specimens of this bird, and giving others opportunities of studying it.

38. *Elliot's 'List of Humming-birds.'*

[List of Described Species of Humming-birds. By Daniel Giraud Elliot. Smithsonian Misc. Col. no. 334.]

This is a list of the 427 species of Trochilidæ recognized by Mr. Elliot in his Synopsis, of which we have spoken already (Ibis, 1879, p. 479). Its object is to "facilitate the labelling of specimens," and to "serve as a check-list of the species."

39. *Finsch's 'Journey to Western Siberia.'*

[Reise nach West-Sibirien im Jahre 1876. Auf Veranstaltung des Vereins für die deutsche Nordpolarfahrt in Bremen unternommen mit Dr. A. E. Brehm und Karl Graf v. Waldburg-Zeil-Trauchburg von Dr. O. Finsch. Royal 8vo. Berlin: Verlag von Erich Walbroth. 1879.]

This volume contains the narrative of Dr. Finsch's journey to Western Siberia in 1876, of which he has already given us some account in this Journal (see Ibis, 1877, p. 48). It is illustrated by many well-executed lithographic plates, taken from Dr. Finsch's sketches of life and scenery. Numerous allusions to birds occur throughout the work.

40. *Hume and Marshall's 'Game Birds of India.'*

[The Game Birds of India, Burmah, and Ceylon. By Hume and Marshall. 8vo. 44 plates, 280 pp. Vol. I. (No date on title, but preface dated July 1st, 1879.)]

The first volume of this work contains the Bustards, Sand-Grouse, Megapodes, Pheasants, Spur-fowl, and Snow-cocks. A chromolithograph of each species is accompanied by letter-press, consisting principally of field-notes. As regards the plates, they are certainly, to say the least of them, *not good*, although mostly sufficient for the determination of the species. But Mr. Hume has so justly criticised them himself, that it is not necessary for us to say much on the matter. The letterpress, from Mr. Hume's pen, is full of interesting details as to habits and ranges, and well adapted for the object of the work.

41. *Hutton on a new Penguin.*

[On an apparently new Species of Penguin from Campbell Island. By F. W. Hutton. Proc. Linn. Soc. N. S. W., vol. iv. p. 334.]

The new species, which is named *Eudyptes filholi*, after Dr. Filhol, naturalist of the French Transit-of-Venus Expedition, is allied to *E. chrysocome* and *E. chrysolophus*, but is distinguished by the yellow superciliary streaks commencing behind the termination of the culmen. An analysis of the known species of *Eudyptes* is added.

42. *Meyer's Index to Reichenbach's Ornithological Works.*

[Index zu L. Reichenbach's ornithologischen Werken zusammengestellt von A. B. Meyer. Royal 8vo. Berlin: R. Friedländer & Sohn. 1879.]

Dr. Meyer's index to Reichenbach's works will certainly be of great use to students in ornithology. Dr. Meyer's volume contains:—(1) an alphabetical index to the generic names used in Reichenbach's 'Avium Systema Naturale' (1849–50); (2) a list of the names of the species figured in the plates which accompany the 'Handbuch d. sp. Ornithologie;' these figures are numbered from 1 to 5060 (with many omissions); (3) a list of the names of the species figured in the 'Neu endeckte Taubenvögel,' the plates of which are separately numbered 1–82; (4) a list of the names of the species figured in the 'Singvögel' (51 plates); and (5) an alphabetical index to the names of the species contained in the above-mentioned works. In his preface Dr. Meyer gives a list of the dates of issue of the various portions of these works as far as it has been possible to make them out from the publishers. But it is a great pity Dr. Meyer has not given us a more exact account of what Reichenbach's works really consist of, and some indications of how they are best arranged. After devoting much time to the study of this subject, aided by the new Index, we regret to say we are nearly as much in the dark on it as before. In our opinion, Reichenbach and his ways are quite incomprehensible to the ordinary intellect. We had hopes that Dr. Meyer would have solved the mystery; but he has not done so. For instance, in our 'Handbuch' we have 32 pages bound up (paged in roman numerals), containing an exposition of Reichenbach's system, and a list of genera, without title or date, but headed 'Die Vögel.' Dr. Meyer does not appear to have noticed or to have indexed this, although a multitude of new generic titles are given in it, *e. g. Cyrtopelicanus, Leptopelicanus, Catoptropelicanus, Chionochen, Stictonetta, Marmaronetta,* &c. Surely some notice should have been taken of these names, and they should have been referred to in the Index.

43. *Newton's edition of Tunstall's 'Ornithologia.'*

[Tunstall's Ornithologia Britannica. Edited by Alfred Newton, M.A., F.R.S., &c. London: 1880.]

The new Willughby Society, "for reprinting ornithological works interesting for their utility or rarity," have started with a reprint of Tunstall's 'Ornithologia Britannica,' originally issued in 1773. Prof. Newton contributes a short but useful preface. The reprint, executed by photolithography, is reduced in size, but is otherwise a *facsimile*.

We believe that this will be followed by a reissue of Sir Andrew Smith's papers, and of A. H. Lichtenstein's 'Catalogus rerum Naturalium rarissimarum,' both exceedingly scarce works.

44. *Oustalet's 'Ornithological Notes.'*

[Notes d'Ornithologie. Par M. E. Oustalet. Bull. Soc. Philomat. Paris, 1879, July 12.]

M. Oustalet shows that *Bubo sinensis* of Père Heude (Ann. Sc. Nat. sér. 3, xx. no. 2), from Chinese Thibet, is identical with *Bubo coromandus*. He describes a Woodpecker from Laos, of which examples were transmitted to Paris by Dr. Harmand in 1877, as new, and calls it *Picus harmandi*. It comes next to *P. macæi.* M. Oustalet also gives many notes on the birds of New Caledonia and the New Hebrides.

45. *Oustalet on the Birds of Gaboon.*

[Catalogue Méthodique des Oiseaux recueillis par M. Marche dans son voyage sur l'Ogôoué avec description d'espèces nouvelles, par M. E. Oustalet. Nouv. Arch. Mus. sér. 2, tome ii. p. 53.]

An important memoir on the birds collected by M. Marche during his recent expedition up the Ogové, in company with MM. Savorgnan de Brazza and Dr. Ballay. To the list are added such species of the colony of Gaboon as were previously represented in the Paris Museum by unquestionably authenticated specimens. This makes a total of 152. But if we add the species enumerated by Cassin in his papers upon Du Chaillu's collections not represented at Paris, the whole avifauna of this district would appear to embrace at least 300 species.

The new species now described are *Dendropicus sharpii* and *Dicrurus sharpii.* Figures are given of *Sigmodus rufiventris, Ixonotus guttatus,* and *Querquedula hartlaubi.*

46. *Oustalet on Birds from the Loss Islands.*

[Note sur une petite collection d'oiseaux provenant des îles Loss, Afrique Occidentale. *Ibid.* p. 149.]

The Loss Islands lie off Sierra Leone, on the West-African coast. The collection received contained examples of fifteen mostly well-known species; but amongst them was the fine new Glossy Starling, *Coccycolius iris,* previously described (*cf.* Ibis, 1879, p. 475), but now figured.

XXIII.—*Letters, Announcements, &c.*

We have received the following letters addressed to the Editors of 'The Ibis:'—

December 16, 1879.

Sirs,—At a meeting of the Zoological Society last May I exhibited an Owl from Mount Sinai, which I believed to be new, and which I proposed to describe. I had had the bird in my collection for several years, and supposed it to be *Otus abyssinicus*, Guérin, of which no specimen is known to exist in this country. I afterwards ascertained that the bird I exhibited had been described by Mr. Hume in 'Stray Feathers,' 1878, p. 316, as *Asio butleri*, from Omara, on the Mekran coast of Arabia. I wish to point out, however, that the bird is not an *Asio*, but belongs undoubtedly to the genus *Syrnium*, and therefore should stand as *Syrnium butleri* (Hume).

Yours &c.,
H. B. TRISTRAM.

Durham, March 2, 1880.

SIRS,—I have read with much interest Count Salvadori's remarks on my paper on the birds of the Solomon Isles (Ibis, Jan. 1880, p. 130), and, with your permission, will make a few observations on the learned Professor's suggestions.

Collocalia linchi, H. & M. The specimen, which I only doubtfully identified as *C. linchi*, I have sent to the Count, who pronounces it to be *C. fuciphaga* (=*nidifica*), differing from Javan and Bornean specimens in having the underparts a little lighter, a feature which has been already noticed by Gray in the Louisiade specimens.

Hirundo tahitica, Gm. My specimen has the tail-feathers completely black.

If *Myzomela pammelæna* is distinct from *M. nigrita*, my bird is certainly the former; for the axillaries are jet-black in both specimens, and the inner margins of the remiges are not white, but whitish brown.

I have compared my *Piezorhynchus vidua* with Mr. Ramsay's description of *Monarcha brodii*, with which it in no way tallies, my bird having a broad white collar, and the lower back and uropygium white, while Mr. Ramsay's bird is all black.

My *Myiagra cervinicauda* differs from Mr. Ramsay's *M. pallida* in having the whole under surface from the chin, and the under wing-coverts, chestnut, without any white whatever.

Rhipidura russata cannot be identical with *R. rufofrontata*, which has the upper surface brown, shading into rich rufous on the rump and upper tail-coverts. The whole upper surface of my bird is rich rufous.

Graucalus monotonus I compared with *G. papuensis*, from which it certainly differs. The type of my bird and also of *Edoliosoma salomonis* are both now in the British Museum.

The female of my *Ptilopus ceraseipectus* corresponds exactly with *P. solomonensis*, G. R. Gray, in the British Museum. But as the plumage is simply of a uniform green, with yellow under tail-coverts, and in no way distinguishable from that of the female of other species, such as *P. rivolii* and *P. prasinorrhous*, I doubt whether Gray's name can stand, as it is only the locality which enables us to identify it.

Count Salvadori has kindly sent me his monograph on the subgenus *Globicera*; and I find that my *G. richardsi* is undoubtedly a mere synonym of his *G. rufigula*, and must therefore be ignored.

Yours &c.,
H. B. Tristram.

February 11, 1880.

Sirs,—Allow me to correct a slight accidental error in the footnote at p. 43 of the present volume; the specimen of *Urubitinga anthracina*, there mentioned as recently added to the Norwich Museum, was not sent to England from Dominica, but from St. Vincent. I would also ask permission to correct a misprint in a letter of my own at p. 144, where "Easton, in Norfolk," should be read instead of "Eastern Norfolk."

I am, &c.,
J. H. Gurney.

Sirs,—I have read with much interest the news in the last number of 'The Ibis' of the rediscovery of the rare and remarkably formed Humming-bird *Loddigesia mirabilis*, of which, until now, only the original specimen in the Loddige collection was known to naturalists. When passing some time at Chachapoyas in 1860, on my way across the Andes and down the Amazons (during which I made an unsuccessful attempt to penetrate to the great "elbow" or bend of the Marañon at the Pongo de Manseriche, the first barrier to navigation on the great river), I met with six Indians of the Aguarunas tribe; and the chief of the party wore a chaplet adorned with the body and the unmistakable crossed and spatula-tipped tail of this rare species. Although not aware at the time of the great value of the bird, I endeavoured to obtain both this chaplet and several other articles of the very scanty apparel and adornments worn by these Indians; but on that occasion nothing in the shape of knives or even liquor would tempt them, and the chance was lost. Subsequently, on conversing with Mr. Gould, he showed me his figure of this bird, which I at once recognized; and I fear he will never forgive me for not having obtained that specimen by some means, forcible or otherwise. However, I did what I could to atone for my over-conscientiousness by sending out drawings of the bird and by writing to my friends at Chachapoyas and urging them to take all possible steps to procure it. The drawings were duly distributed, and much commented on in subsequent letters which I received; but no specimens were ever obtained. My impression is (but I am now speaking from memory) that Mathews, the botanical collector, who procured this bird in 1835, met with it during an excursion to an estate named Hidalgo, which is reached by a rather steep descent into a very dark and humid forest-clad gorge; but there are several such in the neighbourhood of Chachapoyas, and Quipachacha may well be another of them, or even a locality on the very same road. The city of Chachapoyas (it boasts of a cathedral) is situated on the Eastern Andes, at about 5000 feet above sea-level, and in a temperate climate; but the descents in the direction of the river flowing into the Amazons (or Marañon, as it is there called) are so exceedingly abrupt that a very much warmer temperature and thick forest would easily be reached within a distance of three kilometres from the capital. We shall doubtless receive further particulars, and probably more specimens, and in any case both Herr Stolzmann and Graf von Berlepsch are to be congratulated on this rediscovery of a species which had so long baffled the cupidity of collectors.

Yours &c.,
Howard Saunders.

Royal Zoological Museum, Dresden,
March 11, 1880.

Sirs,—In 'The Ibis' for 1879, at p. 133, in my paper on the birds of Celebes, I did not make up my mind conclusively as to the specific difference between *Streptocitta torquata* (Temm.), from North Celebes, and *Streptocitta caledonica* (Lath.), from the southern parts of that island, but waited for further specimens before doing so.

I have now three specimens of *Streptocitta* from South Celebes, all differing in the same manner from North-Celebean ones, of which I have before me a series of sixteen individuals from different parts of the Minahassa and the Gulf of Tomini. All three of the southern form have the base of the bill of a deep yellow, even orange-colour—in one specimen not only the first third, but half the bill. The greenish hue of the plumage of these specimens, when put side by side with North-Celebean ones, is not to be passed over, especially the lower rump and the uropygium, which are obviously greenish instead of bluish.

I therefore do not hesitate to consider *Streptocitta caledonica* (Lath.) a well-defined species from South Celebes. It would be interesting to get specimens of *Streptocitta* from the centre of the island, or from those parts where *Streptocitta torquata* and *S. caledonica* meet. I have already mentioned (*l. c.*) that Dr. Beccari thinks he saw both species together near Kandari, in South Celebes; but as they only differ in such a slight manner, it would be difficult to decide to which form individuals belong without having the birds in hand.

I obtained male and female of *Streptocitta caledonica*; the specimens were shot at Kalibangkere, in the district of Tjamba (South Celebes), in the month of March. The native name of the bird in that district is "Ponto Kalong." The collector notes the iris to be brown, the feet greyish black.

Yours &c.,
A. B. Meyer.

The Socotran Expedition.—Colonel Godwin-Austen not having been able to undertake the expedition to Socotra this spring, the Committee of the British Association have arranged with Professor Isaac B. Balfour, of the University of Glasgow, to proceed there to investigate the zoology and botany of the island, and to make collections. Professor Balfour left England in January last by the French mail for Aden, and arrived there on the 24th of that month. Here Capt. Heron, of H.M.S. 'Sea-Gull,' having received instructions from the Admiralty to assist Professor Balfour, offered to take him on to Socotra, and was ready to start on the 2nd February. Unfortunately a gale sprang up, and detained them until the 5th, when they started, but were compelled to return again, to wait until the wind abated. Ultimately Prof. Balfour and his assistants were safely landed in Goulburn Bay, at the west end of Socotra, on Feb. 11, weather not permitting the vessel to go round to the principal port, Tamarida. Prof. Balfour had formed pretty high expectations of the island from what he had heard, but these were greatly exceeded by the reality. The flora was found to be rich and varied; and 150 species of plants, some of great interest, were obtained in a few days. Birds were numerous, as also reptiles and insects. There was plenty of water, and some splendid *Dytisci*. The geology was very perplexing—granite, limestone, and dioritic rocks being mixed up in an extraordinary manner. Prof. Balfour has as a companion an officer of the 6th Royals, who can sketch and take surveys, and, besides his collector from the Glasgow Botanic Gardens, has with him several natives and an interpreter from Aden. We trust that the Professor, who will return in April, will bring back a good series of the birds of Socotra, including the "Emeu" of Lieut. Wellsted.

Fossil Asiatic Ostriches.—The last number of the 'Geological Magazine' contains a very interesting article by Mr. William Davies, of the British Museum, upon some fossil bird-remains from the Siwalik Hills*. Mr. Davies, amongst other things, gives a good description and figure of the important bones, in the the British Museum, upon which the *Struthio asiaticus* of A. Milne-Edwards, shortly indicated in his 'Oiseaux fossiles de la France' (ii. p. 587), was based. They consist of a "distal end of a tarso-metatarsal of a two-toed bird, with the proximal half of the first phalange of the third toe in its natural position." Mr. Davies tells us that the result of a careful comparison of the bones with the corresponding bones of the African Ostrich (*Struthio camelus*) is that, as regards form and size, they are identical. After giving the facts necessary to prove this to be the case, Mr. Davies continues as follows:—

"As the fragments of fossil bones above described certainly belong to the genus *Struthio*, they establish the fact, so far as our present knowledge extends, that the Ostrich had its early home in Asia, its fossil remains not having hitherto been found elsewhere; also, that as regards size, the ancient bird was not inferior to its modern African congener, and in respect to the form of the bones of the limbs is indistinguishable from it. This intimate resemblance tends to the inference, if not to the assurance, that the African Ostrich is a direct descendant, perhaps slightly modified as regards the cervical vertebræ, of the older Asiatic bird, which, at some remote period, impelled by circumstances, migrated from its original home to its present habitat. And, whatever the physical changes that necessitated the migration, it was not accomplished alone; for the Giraffe, now confined exclusively to the African continent, had also an Asiatic origin, and has left its remains, associated with those of the Ostrich, in the same Indian deposits.

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* "On some Fossil Bird-Remains from the Siwalik Hills in the British Museum." By William Davies, F.G.S., of the Geological Department, British Museum. ('Geological Magazine,' new series, decade ii. vol. vii. p. 18.)

"Referring to the fossil Giraffe, Dr. Falconer observes that the 'teeth come so near those of the existing African species in size and form as to be undistinguishable'[*].

"And with regard to the existing African mammalia, Mr. Wallace, commenting upon the former junction of Africa with Asia, says that 'all over Africa, but more especially in the east, we have abundance of large ungulates and felines, antelopes, giraffes, buffaloes, elephants, and rhinoceroses, with lions, leopards, and hyænas, of types all now or recently found in India'[†]. He elsewhere observes that the migration was 'apparently effected by the way of Syria and the shores of the Red Sea,' and that 'by this route the old south Palæarctic fauna, indicated by the fossils of Pikermi (Greece) and Siwalik Hills, poured into Africa' (p. 288)."

In a recent part of the 'Records of the Geological Survey of India,' Mr. Lydekker has described some bones from the same deposit in the Siwaliks, now in the Calcutta Museum, which he refers to the genus *Dromæus*[‡]. If Mr. Lydekker's views are correct, it is certainly a most remarkable fact, as Mr. Davies points out, that these two forms of Struthious birds now so widely separated should have once coexisted in the same district.

Besides this, Mr. Davies, in the article above referred to, describes and figures an "entire second phalanx of the middle toe of a tridactyle Struthious bird, distinct from the Emu and the Cassowary, though approaching nearer to the latter than the former, from the same formation. It would therefore appear that three forms of Struthioid birds were contemporaneous in the ancient plains of India.

Conothraupis, *a new Genus of Tanagers.*—I have been kindly permitted to acquire in exchange from the Warsaw Museum a skin of *Schistochlamys speculigera*, Gould (P. Z. S.

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[*] Palæontological Memoirs, vol. i. p. 26.

[†] 'Geographical Distribution of Animals,' vol. i. p. 286.

[‡] "Notes on some Siwalik Birds," by R. Lydekker, B.A., Geological Survey of India, 'Records of the Geological Survey of India,' vol. xii. p. 52.

1855, p. 68), one of the few Tanagers wanting to my series. I am now convinced that the genus *Schistochlamys* (sive *Diucopis*) is not the proper position for this curious bird, which is remarkable for its straight gonys and but very slightly incurved culmen. I propose to remove it to near *Arremon*, where I think it will fit in better, under the new generic term *Conothraupis* (*κῶνος*, *conus*, and *θραυπὶς*, *tanagra*); so that it will stand as *Conothraupis speculigera*. Mr. Gould's types were from the Ucayali (*Hauxwell*); M. Taczanowski received his specimens from Callacate, in Central Peru (*Stolzmann*).—P. L. Sclater.

Meyer's Chart of New Guinea.—In a privately printed volume entitled 'Auszüge aus den auf einer Neu-Guinea Reise im Jahre 1873 geführten Tagebüchern von Adolf Bernhard Meyer, als Erläuterung zu den Karten der Geelvink-Bai und des Maccluer-Golfes,' printed at Dresden in 1875, a copy of which Dr. Meyer has kindly forwarded to one of us, is given a photographic copy of the author's original MS. chart of the great Bay of Geelvink, in New Guinea, and the islands lying therein. Dr. Meyer's route during his expedition in 1873 is shown by a red line. There is also a lithographed chart of the neck of land between the Bay of Geelvink and the head of Maccluer's Gulf, on a larger scale, to show Dr. Meyer's track when he traversed the isthmus. These maps are illustrated by extracts from Dr. Meyer's journal, which are so arranged as to give a complete account of this celebrated journey. The volume is, we need hardly say, of the greatest interest to those who are concerned with the natural history of New Guinea and its islands.

There would appear to be no serious difficulty in a determined explorer following Dr. Meyer's plan of hiring a vessel at Ternate and visiting various spots in this part of New Guinea. Dr. Meyer's reception by the natives seems to have been everywhere of the most satisfactory description.

Obituary.—Mr. Edward Hearle Rodd, whose name is well known to all students of British ornithology, died at

Penzance on the 25th of January last, at the age of 70. The son of a clergyman belonging to an old Cornish family, Mr. Rodd was educated as a solicitor, and became a member of the chief legal firm in Penzance at an early age. Commencing from the year 1838, he was the author of numerous communications to the 'Reports of the Royal Institution of Cornwall' and the 'Zoologist' on the ornithology of the county. In 1864 these papers were collected and republished under the title of 'A List of British Birds occurring in the Land's-end District.' A second edition of this list, in an enlarged form, was issued in 1869; and we understand that a still more elaborate work on the same subject, entitled 'The Birds of Cornwall and the Scilly Islands,' which was left nearly ready for the press at the time of the author's decease, will be edited by Mr. Harting, and will shortly be published by Messrs. Trübner. Mr. Rodd's collection of birds and scientific books are left, we understand, to his nephew, Mr. Edward Rodd, of Chard, Dorset.

Dr. THOMAS MAYO BREWER, the well-known ornithologist of Boston, Mass., and an occasional contributor to this Journal, died on the 23rd of January last, at the age of 66 years, after a short illness. In 1839 Dr. Brewer published an edition of Wilson's 'American Ornithology,' with a synopsis of all the North-American species then known. He was also one of the joint authors, along with Professor Baird and Mr. Ridgway, of the important 'History of North-American Birds,' published in 1874. Dr. Brewer paid special attention to oology, and was one of the leading authorities on the eggs of American birds. His 'North-American Oology,' of which the first volume was published in 1857 by the Smithsonian Institution, was, unfortunately, not continued.

We also announce with much regret the death, at the early age of 34, of Mr. JOHN EDMUND STURGE, of Olveston Hall, Montserrat, W. I. Mr. Sturge had lately commenced the study of the unknown ornis of the island in which he resided, and had begun to supply collections to one of the Editors of this Journal, which it was hoped might lead to a complete knowledge of the avifauna of Montserrat. A note on Mr. Sturge's collections will be found in the 'Proceedings of the Zoological Society' for 1879 (p. 764).

New Works in preparation.—Mr. R. G. Wardlaw-Ramsay is editing for the Marchioness of Tweeddale a reprint of the ornithological works of the late Marquis. The work will be in quarto, and make two volumes, which, furnished with the editor's notes and indexes, will be most useful to those who are studying the birds of India and Eastern Asia, and will form a valuable memorial of the much-lamented author. Dr. Hartlaub, we understand, is intending to publish a new edition of his excellent little 'Handbook of the Birds of Madagascar.' Mr. Seebohm is working hard on his volume of the British-Museum Bird-Catalogue, which will embrace the Turdidæ and Sylviidæ. The volume on the birds of the 'Challenger' Expedition, containing a reprint of the reports on the several collections already published in the 'Proceedings of the Zoological Society,' with notes and additions by the editor (Sclater), is nearly ready for press. It will be illustrated by thirty coloured plates.

Salvadori's 'Ornithology of New Guinea.'—The first part of Count Salvadori's 'Ornitologia della Papuasia e delle Molucche' is now ready for issue. It contains the Accipitres, Psittaci, and Picariæ, of which there are 255 species credited by the author to New Guinea and the Moluccas. The volume is in quarto, and contains about 560 pages. There is a short preface, the description of the species, a systematic and a synonymic index. Of each species there is the full synonymy, a Latin description, a mention of all the localities inhabited, a descriptive catalogue of all the specimens collected in New Guinea and the Moluccas by Beccari, D'Albertis, and Bruijn, and general remarks. The volume will be issued in the 'Memorie della R. Accademia delle Scienze di Torino.' Only a very limited number of separate copies have been printed, for which immediate application should be made to the author, Zoological Museum of Turin, or to any bookseller.

Ober's Researches in the West Indies.—We are glad to hear that Mr. F. Ober, the collector for the Smithsonian Institution, left New York early last month again for the West Indies, to continue his researches into the fauna of the various islands, in which he has already made such notable discoveries.

THE IBIS.

FOURTH SERIES.

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XXIV.—*Additional Notes on the Ornithology of Transvaal.* By Thomas Ayres. Communicated by John Henry Gurney.

(Continued from p. 112.)

Buteo desertorum (Daud.). Desert-Buzzard.

Male, adult (or nearly so), shot 13th March. Irides light umber-brown; cere and gape gamboge-yellow; tarsi and feet greenish gamboge. Total length 17·5 inches, tarsus 3·25, wing 13·5, tail 7·75. Stomach contained lizards.

Buteo jakal (Daud.). Jackal-Buzzard.

Female, immature in change, shot 1st July. Irides pale tawny brown.

Circaetus pectoralis, Smith. Black-chested* Harrier-Eagle.

Male, immature, shot 22nd July. Irides bright gamboge-yellow.

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* [In 'The Ibis' for 1877, at p. 341, this name is misprinted "Black-*crested*."—J. H. G.]

This specimen, and the two Buzzards previously mentioned, were all shot on the same farm, about a couple of miles from Potchefstroom; the *Circaetus* was quietly perched on the top of a high willow.

[Referring to my description and notes of measurements of several individuals of this species in 'The Ibis' for 1878, pp. 152 to 158 and 163, I may mention that the plumage of the present specimen seems to me to be intermediate between Nos. 2 and 3 in the list there given—the abdomen, flanks, and under tail-coverts having white feathers, crossed near the tip with a bar of brightish fawn-colour, and most of the feathers also showing another similar bar, but imperfect in the centre, about the middle of the feather. The following are the principal measurements of this specimen:—wing 20·6 inches, tarsus 3·5, middle toe *s. u.* 1·8, culmen (exclusive of cere) 1·5.

Since the publication of my note in 'The Ibis,' above referred to, the Norwich Museum has acquired two additional specimens of the allied fuliginous species, *C. cinereus*, of which I subjoin the like measurements, for the sake of comparison, and in addition to those I have already given in 'The Ibis' for 1878, p. 163.

	Wing.	Tarsus.	Middle toe *s. u.*	Culmen, excl. cere.
From Abyssinia	22·1	4·0	2·6	2·15
Do. (Galas Country)	21·3	3·9	2·3	1·9

—J. H. G.]

ELANUS CÆRULEUS (Desf.). Black-shouldered Kite.

Male, immature, shot 29th May, 1879. Irides yellow.

Female, immature, shot 30th May, 1879.

Female, adult, shot 1st June, 1879. Irides bright crimson.

Female, adult, shot 14th July, 1879.

At the time the above were obtained this species was more plentiful than usual, but now (October) there are very few about.

CIRCUS MACRURUS (Gmel.). Swainson's Harrier.

Male, immature, shot 13th January. Irides light yellow.

This bird, during the midday heat, dashed out from some dense thorn-tree cover on the side of a rocky range.

Circus cineraceus (Mont.). Montagu's Harrier.

Male, adult, shot 11th March. Irides bright gamboge-yellow. Stomach contained a very large green mantis, swallowed whole.

Caprimulgus rufigena, Smith. Rufous-cheeked Goatsucker.

Four specimens from the rocky bushy ranges near Potchefstroom.

[The following are particulars of the four specimens above mentioned:—

No. 1. Male, adult, shot 16th September. A white spot on the inner web of the first primary, and a similar spot extending to both webs of the three next primaries, the shaft of the first and second being black where it passes the spot, and of the third and fourth white; the two external pairs of rectrices tipped with white very conspicuously.

No. 2. Male, immature, shot 20th February. Somewhat resembling the specimen described in 'The Ibis' for 1877, p. 342, but apparently a younger bird; the spot on the three first primaries white, tinged with buff, and on the fourth pure rich buff, confined in all four to the inner web, but a small distinct buff spot on the outer web of the fourth; the shafts of all the primaries black; the tips of the two outer pairs of rectrices buffy white.

No. 3. Male, immature, shot 16th February, but apparently more advanced than the preceding specimen; the spots on the primaries as in No. 1, but the white tinged with buff, especially on the fourth, and with all the shafts black; one new adult rectrice of the outermost pair as in No. 1, the other three apparently belonging to the immature plumage, and tinged with buff, though whiter than in No. 2. In the adult male plumage the portion of the external rectrice above the white tip is blacker and less barred with brown than in the young bird.

No. 4. Sex uncertain, but probably a female, shot 16th February. A buffy white spot on the inner webs of the three first primaries only, the shafts all black; the two exterior pairs of rectrices destitute of the white tips and penultimate black portions observable in the adult male, but the outermost pair very narrowly edged and tipped with pale buff.—J. H. G.]

CYPSELUS APUS (Linn.). Common European Swift.

Male and female, adult, shot 5th February, 1879, when small companies of these birds were hunting swiftly over the open country near Potchefstroom.

Sex uncertain, immature, shot 4th April 1879.

[The last-named specimen is entirely in immature dress.—J. H. G.]

HIRUNDO RUSTICA, Linn. Chimney-Swallow.

Female, adult, shot at Potchefstroom, 16th April, 1879.

HIRUNDO SEMIRUFA, Sundev. Rufous-breasted Swallow.

Female, adult, shot 23rd September.

Male, immature, shot 17th February.

[The last-named specimen has the external rectrices much shorter than in the adult, the under surface of the body is a paler rufous, and the upper surface brownish black, instead of dark blue, with a metallic lustre, as in the old bird.—J. H. G.]

HIRUNDO ALBIGULA (Bp.). White-throated Swallow.

Two specimens of this species were shot on 19th August. By the 4th September these Swallows were plentiful along the river, and by 18th September they were pairing; a month later they were more dispersed and not seen so plentifully. They feed principally over the marshes, but often rest upon the ant-heaps in the open country.

352. COTILE RIPARIA (Linn.). Sand-Martin.

Irides dark umber; bill black; tarsi and feet light dusky brown.

This I take to be a species that I have not hitherto sent from this or any other locality; it feeds and is generally found in company with *Cotile paludicola*, *Hirundo rustica*, and other Swallows, but more particularly with *C. paludicola,* which bird it very much resembles, though it seems to me, during its flight especially, to be pretty easily distinguishable by the darker and more metallic shade of the wings, by its more rapid flight (as it easily passes *C. paludicola,* and its flight is not nearly so wavering as in that species), and also by its white throat, which is conspicuous during flight; its wings, too, during flight, appear to be more acute and sharply cut than those of *C. paludicola,* and this is particularly noticeable, as well as the general smaller appearance of the bird; the beat of its wings is often rapid, resembling that of the smaller Swifts. Although these birds appear here in considerable numbers, I have only noticed them at the latter end of our summer, whereas *C. paludicola* is common all the year round, both winter and summer. The iris and tarsus, as a rule, are of a lighter brown than in *C. paludicola.*

One morning, very early, I went down to the river with my rod to fish, and, sitting quietly near an extensive bed of reeds and rushes, I saw many hundreds of these little Martins leave their roosts among the rushes, all together, just as the sun rose; about a quarter of an hour later many hundreds of *C. paludicola* left the same patch of reeds, or others close by, all together, or nearly so; at this time the two species were not mixed, but at other times of the day they are nearly always together, coursing for insects.

[So far as I am aware, the present is the first instance of *Cotile riparia* having been obtained in any African locality south of the equator. Mr. Ayres has sent me nine specimens, obtained near Potchefstroom in 1879; one of these has accidentally lost the ticket which was attached to it; of the remainder, seven were obtained at dates varying from the 22nd to the 28th February, and one as late as 13th March. By the kindness of Mr. Dresser, I have been able to compare these skins with his series of *C. riparia,* consisting of eight English specimens, two from Piedmont, one from Spain, and one from Niagara, and can find no difference between the birds lent to me by Mr. Dresser and those sent from Mr. Ayres, except that the latter are all in adult dress, which is not the case with two or three of the former.—J. H. G.]

Ceryle rudis (Linn.). Black-and-white Kingfisher.

Male and female shot near Potchefstroom, 22nd March. Irides dusky; tarsi and feet black.

[The male has a wing-measurement of 5·5 inches, and the bill from the forehead to the tip measures 2·3; the corresponding measurements in the female are 5·7 and 2·3. The male has two black pectoral bands, and the female but one, which is interrupted in the centre by a white space measuring ·7 in width; the white nuchal collar and the white edgings to the feathers of the upper surface are rather broader in the female than in the male.—J. H. G.]

Chrysococcyx cupreus (Bodd.). Didric Cuckoo.

Female, immature in change, shot 11th January. Irides light tawny brown; bill dark olivaceous, but the base of the lower mandible orange-red.

[This specimen has in great measure assumed on the upper part the adult plumage which I described in 'The Ibis' for 1879, p. 298; but the primaries and all the rectrices, except the external pair, are transversely barred with rufous; all the under surface is similarly, but less regularly, barred with alternate markings of white and dark metallic green.

The description of the female given in Sharpe's edition of Layard, p. 156, is evidently taken from a young bird.—J. H. G.]

Myrmecocichla formicivora (Vieill.). Southern Ant-eating Wheatear.

This species is apparently increasing in numbers in the Potchefstroom district, where there are plenty of good breeding-places for them in the walls of the holes which the ant-bears burrow all over the country: the bird bores a hole inside these burrows and there nests; but I have not yet taken the eggs, as they are not easily got at without a spade.

Saxicola galtoni (Strickl.). Familiar Wheatear.

This Wheatear is very scarce in the Potchefstroom district, though plentiful about Rustenburg. The specimen sent was a solitary bird, shot amongst mimosa-scrub about fifteen miles from Potchefstroom.

Cisticola chiniana (Smith). Large Grey-backed Fantail.

This is decidedly a scarce bird about Potchefstroom. The specimen sent was shot on the rocky ranges about five miles from the town, amongst the mimosa-scrub; there were two of them, but the other escaped whilst I was picking up the one that I shot.

Bradyornis silens (Shaw). Silent Flycatcher.

These birds are, I think, becoming more plentiful in this locality than they were a few years back; they are inveterate bee-eaters, and I see a pair which frequent my garden catching the bees in the morning and evening as they fly from and to their hives.

Estrelda squamifrons (Smith). Scaly-feathered Finch.

Female, shot 15th September. Irides dark hazel; bill bright, but pale, rose-pink, the under mandible paler than the upper; tarsi and feet dingy pale. The colours in these parts vary in intensity in different individuals.

I found a small company of these little fellows amongst the trees on the banks of the Vaal river, and another small company within three miles of Potchefstroom, amongst the mimosa-scrub, feeding busily on the ground, and evidently seeking for grass-seeds; they are, however, uncommon just about here.

Plocepasser mahali, Smith. Mahali Weaver bird.

Male and female, shot 2nd and 3rd May. Irides bright red-brown; tarsi and feet pale brown; bill, in the male, dusky, nearly black, in the female light dusky brown, paler on the under mandible.

I met with a fair number of these birds amongst the large mimosa-trees that fringe the banks of the Rhinoster river, on the Free-State side of the Vaal.

Fringillaria vittata, Swains. Rock-Bunting.

Both this species and *F. tahapisi* frequent the same localities on the rocky ranges near Potchefstroom, where there is stunted bush amongst rocks and stones.

Certhilauda rufula (Vieill.) = garrula, Smith. Garrulous Lark.

Male, shot 6th January. Irides dark hazel; bill dusky brown, paler on the lower mandible and on the edges of the upper; tarsi and feet pale. Insects contained in the stomach.

Female, shot 22nd January. Irides and bill somewhat lighter than in the male. Culmen ·7 in. in male, ·5 in female.

These Larks are found in small companies; they rise abruptly, and as abruptly settle again amongst the grass; when on the wing they constantly utter a low chirruping note.

Alauda cinerea (Vieill.). Rufous-capped Lark.

Male, shot 30th May. Irides dark ashy umber; bill dark brown towards the tip, yellowish towards the base; tarsi and feet reddish brown.

Female, shot 21st May. Irides dark ashy; bill light brown, darker towards the tip; tarsi and feet dark ashy brown.

These Larks have been much more plentiful than usual this last winter. This species is now one of the commonest Larks in these parts.

[Mr. Ayres sends an adult male of this species, in which both mandibles are abnormally prolonged, and cross each other in consequence.—J. H. G.]

Megalophonus chenianus (Smith). Latakoo Lark.

Male, shot 3rd January. Irides light reddish umber; bill pale, with a decided yellow tinge and yellow at the gape, but dusky brown on the upper mandible, except at the edges; tarsi and feet pale pinkish.

This is emphatically our Sky-Lark; rising in the air to a considerable distance, fluttering, it pours forth its hymn of praise and does not weary. It enlivens the open grass veldt in particular localities*, making the whole country joyous on bright days; and as these Larks are numerous, one then hears a continuous song; they must, however, be more or less migratory, for a month or two after the breeding-season the grass-lands they inhabit are silent, and the songsters are no longer there. The cock birds are of a jealous disposition, and are constantly seen chasing away the would-be admirers of their particular inamoratas; the hen birds are silent and retiring, and in consequence are not easily obtained.

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* One of these localities is on the rising slopes in the open country a mile or two from Potchefstroom.

MEGALOPHONUS RUFIPILEUS (Vieill.). Fasciolated Lark.

Male, shot 15th January. Stomach contained caterpillars &c.

This bird is called amongst the farmers the "Rain-bird," as they consider it a sign of rain that it rises during the breeding-season for some yards in the air with a fluttering flight, descending with a loud *whew* when this action is often repeated; but it is very certain that the same habit prevails during a succession of dry weather; in fact it is one way in which the cock bird pays its addresses to the hen, and weather has very little to do with it.

NUMIDA CORONATA, Gray. Crowned Guinea-fowl.

These Guinea-fowls are plentiful along the banks of the Rhinoster river, on the Free-State side of the Vaal river.

[In the specimen sent, a male from the above locality, the casque measures 2·3 inches along the curve of the upper edge; in another male from the Rustenburg district the casque is smaller.—J. H. G.]

EUPODOTIS AFROIDES (Smith). Black-and-white-winged Bustard.

Male, in full breeding-dress, shot 15th January. Irides light tawny brown, darkest towards the centre; bill light greyish brown, with the basal half pale rose-pink, which changes after death to pale chrome-yellow; tarsi and feet dark gamboge-yellow.

EUPODOTIS SENEGALENSIS (Vieill.). Senegal Bustard.

Two males, shot 15th October. Irides pale tawny, gradually passing into dusky umber round the pupil; bill yellowish pale colour, with the ridge dusky; tarsi and feet dingy yellowish white.

[In one of the specimens sent the crown of the head is bluish grey, darkest in front and pale on the occiput; in the other, which is probably not in such full plumage, the dark portion of the crown is tinged with brown and minutely freckled. There is also a curious difference in the dark transverse barring on the rectrices of these two specimens: in the first the central pair have two narrow bars of similar size on a freckled ground; in the next pair the ground is less freckled, and the upper bar is narrower and less distinct, while the bar nearest to the tip is broader; the remaining rectrices have but one transverse bar, broad and terminal, and are very slightly freckled, and only just above the cross bar; in the second specimen the central pair of rectrices have three dark cross bars of equal size on a freckled ground, and all the other rectrices have two cross bars, of which one is subterminal and the broader of the two, the basal portion of the feather being but very slightly freckled. Mr. Layard, in his description of this species, says that the tail is "barred with four cross bars" (*vide* 'Birds of South Africa,' p. 285).—J. H. G.]

CURSORIUS BICINCTUS, Temm. Double-banded Courser.

Male and female, shot 8th October, breeding on the open flats near Potchefstroom. Irides umber; bill dusky brown, with the basal part of the lower mandible palish flesh-colour; tarsi and feet dingy white.

ÆGIALITIS TRICOLLARIS (Vieill.). Three-collared Plover.

Female, shot 22nd May. Irides dusky tawny brown; eyelid deep orange; bill black at the tip, but the basal parts brownish orange; tarsi and feet pale, suffused with dusky.

Male, shot 20th August. Irides light tawny brown; eyelid bright vermilion; bill black at the tip, but with the basal part rose-pink; tarsi and feet yellowish pale.

Male, shot 12th September. Similar to the preceding specimen, but with the tarsi and feet ashy pale.

Female, breeding, shot 1st October. Irides light tawny brown; eyelid bright red; bill with the basal part rose-red, the tip dusky black, and the ridge dusky; tarsi and feet dingy chrome-yellow.

I found a pair of these birds breeding on an island in the centre of the Vaal river in the month of November. The eggs, two in number and much incubated, were laid on the bare sand, exposed to the heat of the sun, which, one would think, was enough to cook them. The nest was formed by a few very small whitish and white stones in a slight excavation. The eggs were of a creamy white, much marked throughout with dark umber-brown lines, which were especially numerous in two zones, one of which was about the middle of the egg, and the other and darker zone near its obtuse end; they were exceedingly large for the size of the bird, measuring respectively $1\frac{9}{32} \times \frac{29}{32}$ and $1\frac{6}{32} \times \frac{28}{32}$ inch.

[It is remarkable that the Ringed Plover (*Æ. hiaticula*) also lines its nest with small stones: *vide* Stevenson's 'Birds of Norfolk,' vol. ii. p. 85.—J. H. G.]

ÆGIALITIS VARIA (Vieill.). Kittlitz's Plover.

Female, shot 15th August. Tibiæ, tarsi, and feet ash-colour, darkest on the tibiæ and tarsi, which were nearly black.

Female, shot 4th September, containing eggs nearly ready for exclusion, the yolk being apparently fully formed, but without any shell. Tarsi and feet dark ash-colour.

This bird, which seems to be still moulting, was one of a pair found on some gently rising gravelly ground, with but little herbage, and distant about 200 yards from a reedy swamp. I could find no others in the neighbourhood.

Six males, shot 2nd and 6th January. Tarsi yellowish ashy; tibiæ and feet dusky sooty. Found in companies of two or three after rain in roadways. Stomach of two specimens contained small beetles.

Two females, shot 21st January. Tarsi and feet ashy; in one with no sooty tinge on the feet and tibiæ, in the other with less of it than in the preceding specimens. At all the above dates the bills black and the irides dark umber.

ÆGIALITIS ASIATICA (Pall.)*. Caspian Plover.

Two males and five females, shot 2nd and 21st January.

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* I have here used the generic name adopted for this species by Mr. Dresser in his 'Birds of Europe.'

Irides dark umber; bill black; tarsi and feet pale dingy or ashy yellow.

I found these Plovers in groups of from three to half a dozen or so, feeding amicably in company with the preceding species, after showers of rain on the main road from Potchefstroom to Kimberley, and also on the open flats. One of the specimens sent contained small beetles. It is by no means a common species here.

[A male killed 2nd January, and another male killed on 21st, both show the commenced assumption of the rufous gorget, and also of the narrower black band immediately below it.—J. H. G.]

Tringa minuta, Leisl. Little Stint.

Male, shot 2nd May, 1879, at Reit-pan, on the Rhinoster river, in the Orange Free State.

I do not remember having shot a specimen in this mottled plumage before; there were others with it in the ordinary dress.

[The specimen sent has assumed the nuptial garb throughout, except on the lesser and median wing-coverts.—J. H. G.]

353. Totanus canescens (Gmel.). Greenshank.

Female, adult, shot near Potchefstroom 14th September, 1878. Irides dark umber; bill pale ashy, gradually becoming black at the tip; tarsi and feet yellowish ash-colour. Scarce and wild.

Gallinago major (Gmel.). Solitary Snipe.

Two males and one female, shot 22nd February.

One male, shot 28th February.

One male, shot 14th March.

One male, shot 5th September.

One male and one female, shot 20th September.

The above were all obtained near Potchefstroom.

Scops umbretta, Gmel. Umbrette.

Male and female. Irides umber-brown; bill, tarsi, and feet black.

Not long ago I saw one of these queer birds feeding in a shallow ditch; the water was about halfway up his legs, and he was feeling about with his feet in the mud and stones at the bottom, very carefully and in a most comical manner, evidently trying to worry out a frog or a crab, in which he did not then succeed.

These birds, when flying, utter, every now and then, a short, weak, metallic note, which one would not expect from a bird of that size.

HERODIAS GARZETTA (Linn.). Little Egret.

Male, shot 31st July, apparently losing the nuptial dress. Irides pale ashy yellow, with an outer circle of brownish red; bill black; skin round the eye and base of the bill whitish fulvescent; tibiæ and tarsi black; feet pale greenish yellow, the joints of the toes spotted with black on the upper surface. Stomach contained insects and small perch.

ARDEA ARDESIACA, Wagl. Lesser African Schistaceous Heron.

Male, very nearly adult, shot 31st July. Irides umber-brown; bill, tibiæ, and tarsi black; feet orange, changing to yellow soon after death. Stomach crammed with small perch.

This was a solitary bird that I had noticed for some time passing along the river, morning and evening, to and from his feeding-ground; when shot he was leading a small flock of *Herodias garzetta*, and these were immediately followed by about fifty of the Sacred Ibis, all in flight towards their roosting-place. All these birds passed regularly to their favourite resorts in the morning, returning in the evening to more secluded spots to roost.

[The bird sent had attained its adult dress, with the exception of a very few immature feathers remaining unmoulted in the wings and on the underparts; but its crest is considerably less developed than that of the fully adult male shot 21st February, and recorded in 'The Ibis' for 1878, p. 299.—J. H. G.]

ARDEA RUFIVENTRIS, Sundev. Rufous-bellied Heron.

Male, immature, shot 6th October. Irides greenish yellow, gradually changing into a sooty black at the outer edge; bill dusky brown, this colour extending to the eye, lower part of the under mandible pale yellow; skin about the eye pale greenish yellow; tarsi and feet greenish yellow, brighter on the ankle-joints and soles of the feet, upper surface of the toes dusky brown. Total length 20·5 inches.

This was a solitary bird, and I suppose a young one; it rose from some sedges.

[The plumage of this specimen much resembles that of the female figured in 'The Ibis' for 1871, pl. 9.—J. H. G.]

354. Ardea bubulcus, Audouin. Western Buff-backed Heron.

Male, shot 25th March, shows no signs of nuptial dress. Irides very pale chrome, darker towards the outer edge; eyelids also pale chrome; bill a darker chrome, but paler towards the gape; tarsi and feet dusky sooty.

Sex uncertain, shot 19th June. Shows no sign of nuptial dress, except a decided tinge of rufous on the crown of the head; bill chrome-yellow, greenish yellow towards the tip; tibiæ dusky greenish yellow; tarsi and feet almost black.

Female, shot 25th July. In similar plumage to the preceding specimen, but with rather more rufous on the crown of the head; irides as in the first-mentioned specimen; bill and skin about the eye bright chrome-yellow; tibiæ and tarsi pale yellow; feet dusky yellow. The stomach of this bird was crammed with rather large frogs.

All the above were shot near Potchefstroom; but the species is apparently getting scarcer in this part of the country.

Ardetta podiceps (Bp.). Rufous-necked Little Bittern.

Female, adult, shot 10th March. Wing 4·9 inches, bill from forehead 1·9, tarsus 1·6. Irides bright brick-red; bill very pale chrome, greenish towards the base and gape, and dusky brown on the ridge and tip; tarsi and feet grass-green, but with the back of the tarsi and soles of the feet pale yellow. The stomach contained small fish.

Botaurus stellaris (Linn.). Great Bittern.

A specimen shot near Potchefstroom 1st August contained perch, frogs, and chips of wood.

[In 'The Ibis' for 1869, p. 300, this species was included in Mr. Ayres's first list of Transvaal birds under the designation of *Botaurus capensis*; but I now agree with the opinion expressed by Mr. Dresser in his 'Birds of Europe,' that the Bittern of South Africa is not specifically distinct from that of Europe, although the average dimensions of South-African specimens seem to be less than that of European.

The following measurements are taken from five Transvaal skins sent by Mr. Ayres, and I also give those of two British specimens for comparison:—

Transvaal.	Bill from forehead.	Wing.	Tarsus.	Middle toe *s. u.*
♂	2·5	13·2	3·6	3·7
♂	2·5	13·0	3·6	3·5
♂	2·4	12·7	3·6	3·5
♂	2·3	12·7	3·6	3·7
♀	2·3	11·6	3·2	3·2
British.				
♂	2·9	13·8	3·8	3·9
♂	2·8	13·7	3·7	3·8

Mr. Ayres sends the following note of the colour of the iris in three Transvaal specimens:—"Male, shot 3rd October, ashy hazel; male, shot 3rd December, hazel, dusky towards the outer edge; male, shot 1st August, tawny brown, with an outer edging of dark red-brown."—J. H. G.]

Porphyrio smaragdonotus, Temm. Green-backed Porphyrio.

The specimen sent, shot 20th June, is the only one I have been able to get lately. This species is decidedly not so plentiful in the neighbourhood of Potchefstroom as it used to be some years back: whether the gradual decrease of rain in this country the last few years has had any thing to do with this, I cannot say; but it is very possible, for the swamps have had less water in them, and are become more overgrown with weeds. Duck, too, are getting scarcer and scarcer year by year.

Podiceps minor (Gmel.). Little Grebe.

Female, adult, shot 9th July. In process of losing the nuptia dress.

355. Plectopterus gambensis (Linn.). Western Spur-winged Goose.

This is the commonest of our wild Geese, and is by no means capital eating, as the flesh is coarse and tasteless, and the young birds have scarcely any meat on them. Sometimes they are very shy, and at others almost absurdly tame; as a rule, it requires heavy shot to kill them. They come out early in the morning from the swamps and reeds to feed on grass-seeds, and often are seen on the farmer's corn-lands: if stalked in the long grass they will almost invariably creep away, instead of taking wing; and unless the hunter has a dog it is no easy matter for him to find them, as they run at a good pace, and by the time he is on the spot, expecting them to rise, he sometimes sees the head of one a couple of hundred yards off examining the situation; if the shooter squats when the birds are flying, they will often come and have a look at him, and this curiosity frequently costs them their lives. As a rule, they are gregarious, but are sometimes seen singly, and at others in pairs; they breed away from water in thick grassy or rushy spots, and lay a number of white eggs with thick glossy shells.

[Two specimens which I have received from Mr. Ayres are both immature; but the older of the two is beginning to assume the white throat, showing that it belongs to *P. gambensis*, and not to *P. niger*.—J. H. G.]

Anas xanthorhyncha, Forst. Yellow-billed Duck.

These Ducks, during the winter moult, lose all the feathers of the wings at once, and then they take good care not to get far away from the reeds and other cover, where they hide with much cunning; a good water-spaniel is then useful, as the birds, though moulting, are generally fat and excellent eating. I shot several in this condition on the "Barbel Pan," near the Rhinoster river, in the Orange Free State, last winter.

356. Pœcilonetta erythrorhyncha (Gmel.). African Pink-billed Duck.

Male and female, Potchefstroom, 30th June and 24th March.

The same observations as to the moulting of the wing-feathers applies to this as to the preceding species.

357. Querquedula hottentotta, Smith. Hottentot Teal. Male and female, shot near Potchefstroom in the month of November.

Anas sparsa, Smith. White-spotted Duck.

Male, shot 7th March. Total length 22½ inches, bill 2¼, wing 10¼, tarsus 2⅛, tail 5; weight 2 lb. 8 oz. Irides hazel; bill, upper mandible slaty horn-colour, with a large patch in the centre and also the tip black, under mandible pale pink; tarsi and feet dull orange-yellow, with the webs and back parts dusky.

Female, shot 19th April. Total length 21½ inches; weight 2 lb. 6 oz. Irides dusky brown; bill, upper mandible slaty blue, with tip and central patch black, under mandible pinkish; tarsi and feet as in the male. The whole canal to the stomach crammed with grass-seeds.

Phalacrocorax africanus (Gm.). Long-tailed African Cormorant.

Male, shot 26th July. Partially in nuptial dress. Irides bright light crimson; bill chrome-yellow, but light dusky brown on the ridge, tip, and part of the lower mandible, the latter being also more or less barred; tarsi and feet black. Remains of fish in the stomach.

These Cormorants are tolerably numerous about Potchefstroom, but appear to keep to themselves, for they fish and move from place to place in a solitary manner, passing along the river, generally high overhead, early in the morning to their favourite pools, and returning pretty regularly in the evening to where they sleep; they swim very low in the water.

XXV.—*Various Corrections of Synonymy in the Family* Sylviidæ. By Henry Seebohm.

In preparing the synonymy of the fifth volume of the 'Catalogue of Birds in the British Museum,' I have been obliged to disallow the claims of many species to be considered new. These identifications with previously described species will appear in their proper places in the synonymy of the various birds treated of in the volume, but, from the nature of the work, without note or comment. To my mind, whatever value may attach to an opinion is increased at least tenfold by a concise statement of the grounds upon which it is based, so that the readers may be able to form an opinion of their own, instead of accepting it on the authority of even the best expert. Some of our most accurate writers on ornithology have neglected this important point, partly perhaps from a mistaken endeavour to be brief, and partly, it is to be feared, from an unwillingness to commit themselves to a definite line of argument, the accuracy of which might hereafter be impeached. I have frequently been told, when asking for the reason why an opinion in which I could not coincide was expressed, that the writer had no doubt that he had excellent reasons at the time for coming to the conclusions which he recorded, but that now, after the lapse of some years, he was not able to recall his former line of argument to memory. Such replies are eminently unsatisfactory. The day in which opinions were accepted solely on authority is past. Probably we are in danger of rushing to the opposite extreme, and are more inclined, in those cases where the evidence does not satisfy our reason, to give the casting vote in favour of doubt.

It appears to me that new material is so continually coming forward, and old material is so frequently being raked up from the nooks and corners where it has been lying hid, that no ornithological opinion can be considered final, or even of much value, unless accompanied by the statement of the facts upon which it is based.

In addition to the "slaughter of the innocents," which I propose to justify, to the best of my ability, in the present paper there are also numerous errors of identification to correct, which also require some explanation more full than s consistent with the plan of the 'Catalogue of Birds.'

Acrocephalus arabicus, Heugl. Orn. N.O.-Afr. i. p. 289

(1869). I have examined Heuglin's type in the Senckenberg Museum in Frankfort, and am unable to distinguish it from *A. turdoides* (Meyer). The wing measures 3·48 inches, and the second and third primaries are equal and longest.

Acrocephalus fulvolateralis, Sharpe, Layard's B. S. Afr. p. 289 (1877). The type in the British Museum agrees in all its dimensions and in its wing-formula with *A. turdoides* (Meyer), of which there can be no doubt that it is an example in autumn plumage. Through the kindness of Mr. Wardlaw Ramsay I have been able to examine a copy of that rare work, Naumann's 'Naturgeschichte der Land- und Wasser-Vögel des nördlichen Deutschlands und angränzender Länder.' In the "Nachtrag" to this work, vol. iv. p. 199, published in 1811, the genus *Acrocephalus* is carefully characterized, and seven species are named and the specific characters enumerated. The first of these is *Acrocephalus lacustris* (p. 201), which is identified with *Turdus arundinaceus,* Linn. The term *Acrocephalus arundinaceus* having been so universally applied to *A. streperus* (Vieill.), amongst others by Naumann, on the page last quoted, the Great Sedge-Warbler will probably be best designated for the future as *Acrocephalus lacustris,* Naum., a name which antedates *A. turdoides* (Meyer) and is not antedated by *A. junco* (Pall.). For the information of ornithologists anxious to distinguish themselves by discovering forgotten names, I may state that there are no Latin names of birds given in this rare work of Naumann's, except in the genus *Acrocephalus,* beyond an occasional quotation of Linnæus.

Locustella japonica, Cassin, Proc. Ac. Sc. Phil. 1858, p. 194. The type in the museum of the Academy of Natural Sciences in Philadelphia is almost an exact duplicate of the type of *L. ochotensis* (Midd.) in the St. Petersburg Museum, the feathers of the upper parts showing traces only of darker centres. The name must therefore sink into a synonym of Middendorff's species.

Locustella minor, David et Oust. Ois. Chine, p. 250 (1877). The type of this species is lost; but l'Abbé David assures me that his name must be added to the synonyms of *L. certhiola*

(Pall.), of which he is now satisfied that his supposed new species was a somewhat small example.

Lusciniopsis hendersoni, Cassin, Proc. Ac. Sc. Phil. 1858, p. 194. This bird has been identified by Dresser and Hume with the Turkestan and Indian species. I have carefully examined the type in the Museum of the Academy of Natural Sciences in Philadelphia, and find it to be an example of *Locustella minuta,* Swinh., which I take to be only a form of *L. lanceolata* (Temm.). The Turkestan and Indian species must therefore stand as *L. straminea* (Severtz.).

Arundinax davidiana, Verr. N. Arch. Mus. Bull. vi. p. 37 (1870). The type of this alleged species is in the Museum of the Jardin des Plantes in Paris, and is, in my opinion, a specimen of *Horornis fortipes,* Hodgs., or, as I prefer to call the bird, *Cettia fortipes* (Hodgs.). It is described, and not badly figured, in David et Oustalet's Oiseaux de la Chine, pl. 20. If the Formosan species, *Horeites robustipes,* Swinh., be, as I maintain, the same as the Himalayan bird, Abbé David's examples from Chinese Thibet are specially interesting as coming from an intermediate locality.

Horornis fulviventris, Hodgs. MS. Drawings (in the Brit. Mus.) of Birds of Nepal, Passeres, pl. 63, no. 878—which name was first published by Hodgson in Gray's Zool. Misc. p. 82 (1844), and accompanied for the first time with a description of the bird in an article contributed by Hodgson to the P. Z. S. 1845, p. 31—must sink into a synonym of *Phylloscopus fuscatus,* Blyth, a name which dates from 1842. Hodgson's type, which was originally in the India Museum, and is now in the British Museum, is conclusive upon the question. I am inclined to think that Hodgson was right in separating this species from *Phylloscopus.* In their general style of coloration, their large bastard primary, and their somewhat graduated tail, *P. fuscatus* (Blyth), *P. schwarzi* (Radde), *P. armandi* (Milne-Edwards), *P. indicus* (Jerdon), and *P. fuliginiventris* (Hodgs.) are aberrant *Phylloscopi,* and appear to me to be more nearly allied to *Lusciniola melanopogon* (Temm.). This genus might consist of the following species :—*Lusciniola aedon* (*Muscicapa aedon,* Pall.);

L. gracilirostris (*Calamodyta gracilirostris,* Hartl.); *L. melanopogon* (*Sylvia melanopogon,* Temm.); *L. major* (*Dumeticola major,* Brooks); *L. luteiventris* (*Tribura luteoventris,* Hodgs.); *L. thoracica* (*Dumeticola thoracica,* Blyth); *L. flaviventris* (*Horornis flaviventer,* Hodgs.); *L. fuscata* (*Phyllopneuste fuscata,* Blyth); *L. schwarzi* (*Sylvia* (*Phyllopneuste*) *schwarzi,* Radde); *L. armandi* (*Abrornis armandi,* Milne-Edwards); *L. indica* (*Sylvia indica,* Jerdon); *L. fuliginiventris* (*Horornis fuliginiventer,* Hodgs.); and *L. neglecta* (*Phylloscopus neglectus,* Hume).

Arundinax flemingi, Swinhoe, P. Z. S. 1870, p. 440.

Herbivocula incerta, David et Oustal. Ois. de la Chine, p. 246 (1877).

Oreopneuste affinis, David et Oustal. Ois. de la Chine, p. 267 (1877).

A careful examination of the type of the first-mentioned bird in the Swinhoe collection, of the description of the second (the type having been lost), and of the type of the third in the Museum of the Jardin des Plantes in Paris, leads me to the conclusion that these three supposed new species may be all referred to *Phylloscopus schwarzi* (Radde). They vary slightly in size, but not more so than individuals of allied species usually do, and the slight variations of colour are apparently only seasonal. In relative length of wing and tail, in wing-formula, and in shape of bill they do not differ.

Tribura luteiventris, Hodgs., apud David et Oustal. Ois. Chine, p. 239. Abbé David's skins in the Museum of the Jardin de Plantes in Paris are incorrectly identified. The upper parts are olive-brown instead of russet-brown, and the wings are longer instead of shorter than the tail. They are the supposed young in first winter plumage of *Dumeticola thoracica* of Blyth, the *Dumeticola affinis* of Taczanowski, from Lake Baical, of Prjevalski from Kansu, and of Abbé David from Moupin.

Lusciniopsis brevipennis, Verr. N. Arch. Mus. Bull. vi. p. 65 (1871).

Dumeticola mandelli, Brooks, Stray Feathers, 1875, p. 284. These two supposed new species agree precisely in dimensions, relative length of wings and tail, wing-formula, and shape of bill with *Tribura luteoventris*, Hodgs. The type of the former, in the Museum of the Jardin des Plantes in Paris, agrees also in colour; but the types of the latter, in Mandelli's collection, present slight variations. One skin has spots on the throat, and the other traces of slate-grey on the breast. I imagine these only to be seasonal changes; but they may prove hereafter to be specific characters, as Blyth suspected to be the case in his nearly allied *Dumeticola thoracica*.

Phyllopneuste trochilus, Hodgson, Gray's Zool. Misc. p. 82 (1844). The type, formerly in the India Museum, and now in the British Museum, is a skin of *Phylloscopus lugubris*, Blyth.

Abrornis xanthogaster, Hodgson, Gray's Zool. Misc. p. 82 (1844). This species was incorrectly identified by Horsfield and Moore (Cat. E.I. Co. Mus. i. p. 337) with *Phylloscopus lugubris*, Blyth. The types, formerly in the India Museum, and now in the British Museum, are skins of *Phylloscopus affinis*, Tickell.

Abrornis tenuiceps, Hodgs. Gray's Zool. Misc. p. 82 (1844). The type, in the British Museum, is a skin of *Phylloscopus humei* (Brooks); but as Hodgson appears nowhere to have given any description of his species, Brooks's name will stand, according to the British-Association Rules. There are also skins of this species in the British Museum labelled *P. modestus* in Blyth's handwriting.

Abrornis chloronotus, Hodgs. MS. Drawings (in the Brit. Mus.) of Birds of Nepal, Passeres, pl. 57, no. 839, undoubtedly represents *Phylloscopus proregulus* (Pall.), without the grey on the head and throat and without the white on the inside webs of the two outside tail-feathers characteristic of *P. maculipennis*, Blyth. On the other hand, in the same MS. work, App. pl. 45, also no. 839, are two figures undoubtedly representing Blyth's species. In the British Museum both species are represented amongst Hodgson's types, both being numbered "839." Hodgson does not appear ever to have described his species, but catalogues it in Gray's

'Zoological Miscellany' as "*Abrornis chloronopus* vel *Regulus modestus* auct." Under these circumstances I do not see that Hodgson has the slightest claim to have his name recognized at all.

Phylloscopus occipitalis (Jerdon), fide Seebohm, Ibis, 1877, p. 80.

Phylloscopus trochiloides (Sundev.), apud Seebohm, Ibis, 1877, p. 81.

The former is the spring plumage, and the latter the autumn plumage of *P. occipitalis*, Blyth.

Phylloscopus viridipennis (Blyth), apud Seebohm, Ibis, 1877, p. 82.

Phylloscopus (*Reguloides*) *flavo-olivaceus*, Hume, Stray Feath. v. p. 504 (1877).

These are both synonyms of the true *Phylloscopus reguloides* (Blyth).

Phylloscopus presbytis (Müller), from Timor, is probably the *Muscicapa presbytis* of S. Müll. Tydschr. v. Natuurl. Geschied. en Phys. ii. p. 331 (1835), from Sumatra. It is the winter plumage of *P. viridipennis*, Blyth, whose name will stand, since Müller's name is unaccompanied by any description.

XXVI.—*Notes on the Ornithology of Ceylon.*

By E. L. Layard, F.Z.S.

The last mail put me in possession of Parts I. and II. of Captain Legge's 'Birds of Ceylon,' with which I am especially delighted. It would ill become me to criticize the scientific history of the birds as given by the author; but as a "pioneer," as he calls me, in the field, permit me to add my testimony to the accurate descriptions of the habits of our feathered friends and the localities they inhabit. For the last two or three days I have not been in New Caledonia! Bodily, perhaps, I have; but in spirit I have roamed at will in the "Mookalane" of the south, the scrubby jungles of the west coast, and the trackless forests of the "Wanoy," over the vast salt plains of the north, transported to the well-remembered haunts in the lovely "Lanka" by Captain Legge's spirited narrative.

So vivid have been my impressions, though some six and twenty years have passed since I left its shores and ceased to work in its fauna, that the "mysterious chambers of the brain" have given up memories long locked up in them, and incidents of collecting, of travelling, of individual specimens even, seem to stand forth one by one, like pictures in dissolving views, one, as it fades, calling up another. Some of these reminiscences may not be useless to the future explorers of Ceylonese ornithology; I therefore jot them down as they occur to me.

Nisaetus fasciatus. The specimen in the Poole Museum *is* Dr. Templeton's specimen! I now remember it perfectly well. My dear old friend gave it to me, with a few other specimens, when he left the island, and it thus came into the Poole collection, never having been replaced by a better.

My first connexion with the ornithology of Ceylon may well be detailed here.

I arrived in Ceylon in March 1846, and for some time, having no employment, amused my leisure in collecting for my more than friend, Dr. Templeton, who had nursed me through a dangerous illness, and in whom I found a congenial spirit. My chief attraction then was the glorious Lepidoptera of the island; but I always carried a light single-barrelled gun in a strap on my back, to shoot specimens for the Doctor. He himself, like Dr. Kelaart, never shot, but depended on his friends for specimens. I, of course, soon became interested in the "ornis;" and on Templeton's leaving, at the end of 1847 or beginning of 1848, he begged me to take up his correspondence with the late Edward Blyth, then curator of the R. A. S. Calcutta Museum*. He left me his list of the species then known to exist in the island, numbering 183, and Blyth's last letter to answer. From that day almost monthly letters passed between the latter and myself, till I left Ceylon in 1853. The list and the correspondence are still in my possession.

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* All Ceylonese species therefore (except Kelaart's) described by Blyth after this date were discovered by me.

When I left I had brought up the list to 315; deduct from this the novelties added by Kelaart, and some which I think he has wrongly identified (but which are included in my list in the 'Annals and Mag. of Nat. Hist.'), 22 in number, and it leaves me the contributor of 110 species to the Ceylonese ornis, examples of most of which fell to my own gun.

My collecting-trips never extended to those hill-parts where Dr. Kelaart collected, Newera Ellia &c. I was twice in Kandy, once at "Carolina," an estate near Ambegamoa, and once as far as Gillymallie, *viâ* Ratnapoora. The country from Trincomalie to Hambantotte I never touched; and all the glorious "Park" country and the eastern parts of the island, where Captain Legge procured so many of his novelties, is ground untrodden by me. Thus I missed many fine residents. As for stragglers, my varied experience has shown me that it is very unsafe to doubt the assertion of a fellow worker that he found such or such a bird. A species may even be *common* at one time, and utterly absent at another.

I am glad that the liberality of a wealthy relative has kept together the bulk of my Ceylonese collection at Poole, thus rendering it accessible to workers, and proving the correctness or otherwise of my identifications. Many have asserted (my friend Legge among the number, before he saw the specimens) that I *could not* have found *Falco peregrinus* nesting at Point Pedro. When I penned those "Notes on the Ornithology of Ceylon" in the 'Annals and Mag.' (my first attempt at ornithology), I knew nothing of the vexed questions of geographical distribution &c. *I simply put down what I saw,* and I fearlessly take the full responsibility of every species added by me.

Where I myself identified any thing, it was from comparison with specimens sent from India by Blyth. His catalogue, *with all these marked,* is now before me, lately sent out from England with my other books. I interleaved it, and noted each species as it occurred on the flyleaf, with nest and eggs &c.

Thus stands the record, in its faded ink, of my first *Falco peregrinus*:—"Open plain, Wally, near Point Pedro; remains of Dotterel found in its maw."

Turn we now to *F. chicquera.* I read, "Blyth, Pt. Pedro. Specimen seen near Aleoy, but not procured." "Blyth" and the mark (√) showed that the example in my collection came from Blyth, so that I had a specimen in hand by which I recognized the bird I saw.

So with *Nisaetus fasciatus,* which I failed to recognize under that name, but which I remembered as soon as I read Legge's description and saw the synonym *A. bonellii.* I find in pencil, "Blyth gives this from Ceylon." There is something rubbed out at the end of the line! a magnifying-glass shows me the words "sed non vidi"!! I rubbed them out, I suspect, when I identified Templeton's specimen.

Perhaps this note, under *Gyps indicus,* may interest Capt. Legge:—"Reported to have existed in Ceylon."

At page 177 of Capt. Legge's book, pt. i., the orthography of my parrot again crops up, I hope for the last time! CALTHROP was my wife's maiden name. She is descended from an ancient Norfolk family of that name, some of whom were Lords Calthrop. There are very ancient monuments to them in Norwich cathedral. How the title in the family lapsed, I do not know; but a Mr. Gough married one of them (a Barbara Calthrop, who, I suppose, wrote her name *Calthorpe**), and obtained a grant of the old title as "Lord Calthorpe."

Cuculus maculatus. This species I wrongly identified, and it is so entered in the Appendix to the 'Prodromus.' In my copy the name is scratched out, and *C. bartletti* written over it. Under this name I described it in my "Notes," and I see Captain Legge introduces it as a synonym of *C. poliocephalus.* The late Mr. G. R. Gray informed me that my specimens were probably new.

I have before me a series of sketches of birds and animals supposed, or known, to exist in Ceylon. They were sent me by Blyth, to be procured if possible. Among them are facsimiles of three of Brown's wretched figures. One of these is thus marked by Blyth:—"*Trogon maculatus,* auct., referred to *Bucco* by Gray; but no *Bucco* has a barred tail. I suspect it is a very bad figure of a small Cuckoo, my *Chrysococcyx smaragdinus,* size of a Nuthatch." I certainly never procured any of the small shining Cuckoos in Ceylon, but should not be at all surprised to hear that one species at least was an occasional visitant.

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* The name on the monuments is spelt as *I* give it, but sometimes with a double *p*.

A second of Brown's figures is thus marked—"Figure a little too highly coloured, upon which *Bucco zealandicus* was founded; said to be two thirds the size of the original."

The third, and last, is a wonderful effort of the artist! A curious grey bird, with *three feathers* in its tail!! Blyth remarks, "This also is the original of some name. It is evidently a *Drymoica,* size of Hedge-Sparrow, probably therefore *D. sylvatica.*" These miserable figures offer a singular contrast to the life-like drawings of Mr. Keulemans in the present work, and make me rejoice that a new era has dawned upon us! The wonder is that the old authors could have been satisfied with the awful daubs they offered to the public. Did that "gentle" body believe that such monstrosities "lived and moved and had a being"?

The remaining sketches by the same artist, Mr. Khuleeloddeen, consist of forty-two wonderfully accurate and life-like miniatures of birds and animals (four squirrels and one paradoxure). To give an idea of their size, *Athene castanopterus* is represented most perfectly, but barely an inch long! These figures enabled me instantly to detect *Treron pompadoura* when I rediscovered it at the top of the Balcaddua Pass; and I would here remark that Capt. Legge has fallen into an error at p. 727 (2nd part), in thinking what I wrote about the whistle of *Osmotreron bicincta* was meant to apply to *O. pompadoura.* I was perfectly acquainted with both species, and could, and can now! discriminate between, and imitate, the whistle of the two birds in a moment. I have shot dozens of the former off the fine teak trees that (used to?) exist in the magistracy compound at Negombo when I was acting magistrate there; and in the

Balcaddua Pass, Mr. Charles Curgenven, C.C.S., and I lived on *O. pompadoura* for several days.

Capt. Legge had better expurgate his note on page 727. I see my old note, made at the time, in Blyth's 'Catalogue,' which was my constant companion, runs thus, over against *Treron malabarica*:—"Balcaddua Pass; the Ceylon race is probably '*pompadoura*,' so long missing." Over against *T. bicincta* I have written, "Common in the south, and occasionally met with in the Patchellepally; replaced in the interior by *T. malabarica*. Feeds on berries on high trees. Eye, pupil surrounded by a band of blue, iris pink."

The accidental occurrence of *Cyanecula suecica* (p. 444, pt. 2) is a curious but interesting proof how careful we should be in attributing inaccuracies to our fellow workers in the field of zoology. I am glad, for my credit's sake, that a specimen still remains in the Poole Museum. I probably sent the other specimen to Blyth (for it was one of my early captures), and only retained one, expecting to meet with the bird again, and not knowing that there was any thing remarkable in its being found in Ceylon. I was at Ambegamoa in March 1848. I do not, however, see it noted in the Catalogue, or in any of the many appendixes issued by Blyth. By the way, has Capt. Legge seen these appendixes? They contain many notices of Ceylonese birds sent to Blyth. The first note that catches my eye is on a young male of *Palæornis columboides*, sent to him by me. This seems to have been overlooked by me, and the bird is not included in Capt. Legge's work. Is Blyth's identification correct? He apparently had no doubt of it; for in App. No. 3, published later, he adds "19 (*P. columboides*), Hab. also Ceylon."

Buchanga leucopygialis. There appears to me some confusion under this head. Capt. Legge, I see, includes *B. cærulescens* (L.) as a synonym. Mr. Blyth (*vide* Catalogue) regarded them as distinct. The former says, I only obtained *B. leucopygialis* at Point Pedro, and regarded it as an occasional visitant. I see I wrote (Ann. & Mag.) "A common species about Colombo;" and there, and in my notes in Blyth's

Catalogue, I have *B. cærulescens* from the Jaffna peninsula (including Point Pedro) only. *B. longicaudata* I found abundant at Jaffna, and my remarks as to its habit of perching on the backs of cattle are strictly correct. *All these species were sent to Blyth and identified by him,* and the specimens should be in Calcutta.

Phylloscopus viridanus. Under this head the author states that he introduces the bird into the Ceylon list under my authority, and that I allude to a species *Phyllopneuste montanus,* Blyth, no such species being in existence. If Capt. Legge will refer to Mr. Blyth's catalogue, page 183, he will find Blyth gives the *genus* PHYLLOPNEUSTE; at page 184 he makes PHYLLOSCOPUS a *subgenus,* and in the next page (No. 1105) he will see the bird to which I referred, dropping the subgenus, "*Ph. montanus,* Blyth, J. A. S. xviii. Hab. Himalaya." *Ph. viridanus* follows as No. 1106. I have bracketed them together with this note, "Pt. Pedro, common among low thick bushes; irides dark hair-brown." Blyth identified *all* my Point-Pedro birds; so here is one, if it is a good species, which has been overlooked by Capt. Legge.

Cinnyris lotenius. The writer quotes from Kelaart's 'Prodromus,' Cat. p. 119, a stupid error of the Doctor's, attributing to me the name of "*letonia.*" I have before often pointed out that, in the matter of ornithology, Kelaart was a mere copyist. He dreaded the sight of a gun with a peculiar nervous horror, attributable, I suppose, to the terrible affliction to which he was subject. I supplied him with all my lists and numerous specimens, not only of birds, but of many mammals and reptiles new to him, and it was arranged that we should bring out a second part of the 'Prodromus' (then in MS. only), which should consist of the Birds, to be written by me. Third and fourth parts were also shadowed out, to contain the Lepidoptera and terrestrial Mollusca, of which I had large collections (see preface to 'Prodromus,' p. vi). To my intense astonishment and, I must own, annoyance, Kelaart issued his 'Prodromus' without cutting out part ii. (p. 91 *et seq.*), as agreed upon! He used my lists without any reference to me, as the absurd error above quoted shows; and his generalizations are as full of mistakes "as an egg's full of meat!"

The Doctor having thus broken faith, I, on my return to England, published my "Notes" in the 'Annals and Magazine of Natural History,' at the urgent request of my lamented friends, Strickland, Sir W. Jardine, and the brothers Gray, who kindly said the information I possessed was too valuable to be lost.

Cinnyris minima. This species was included in the miniature figures already alluded to, and was the subject of special search, being required by my dear old friend Blyth. I can well remember my delight when I found it (in my time not at all uncommon) round Point Pedro, whence I immediately sent it to Blyth, who confirmed my identification.

I see Cuming's name frequently alluded to, in the work under discussion, as the authority for certain birds from Ceylon. I presume this is my old friend the late Hugh Cuming, of conchological fame. Was he ever in Ceylon? I doubt it; and if my memory does not play me very false, he himself told me he never had been there. He was well known as a dealer, and purchased other things besides shells, if they came together. He paid no attention to birds; and I should be very loth to accept a "habitat" on the ground that Cuming had stated it.

With these remarks I stop, for the present, awaiting the arrival of the last portion of this valuable addition to our ornithological literature.

Noumea, January 1880.

XXVII.—*On the Habits of the Honey-bird* (Indicator).

By E. F. Sandeman.

[It is always of interest to have accounts of such strange phenomena as those presented to us in the habits of the Honey-guides confirmed, however well known they may be. We have therefore no hesitation in transferring to the pages of 'The Ibis' the following extract from Mr. Sandeman's 'Eight Months in an Ox-Waggon,' in which the story of this bird's strange achievements is well and graphically told. The scene of the adventure was near Loses Kop, in the Transvaal, to the east of the Lydenberg (where the road to Delagoa Bay descends from the Berg into the Low Country, or Bush-Veldt), in June 1878.—EDD.]

A SMALL grey bird, with a reddish beak, the size of a Sparrow, had flown alongside and round the waggon for the last mile of our trek, making a shrill hissing cry, and sometimes almost flying in the faces of the drivers; and I noticed that the boys were regarding it with peculiar attention, and talking among themselves in reference to it.

On asking what caused the unusual interest of the boys in, to all appearance, a very common-place little bird, it was explained that this little insignificant visitor was the far-famed Honey-bird. Often and often had we heard tales of its marvellous instinct in pointing out the nests of wild honey, but we had always received them with a considerable portion of disbelief as traveller's tales.

As soon as the oxen were outspanned and the boys at liberty, three of them, armed with buckets, spades, and hatchets, set off towards the bird, which had flown to a neighbouring tree as soon as it perceived that our attention was successfully attracted. A. and myself, to whom it was as strange an adventure as it was novel, accompanied the boys. As soon as we reached the tree the little fellow had perched on, it flitted to the next, and then on again when we came up. Once it took such a long flight that we were unable to follow it.

The bird, however, after waiting for us a short time in vain, came flying back, uttering its shrill cry to let us know its whereabouts.

As if it had been warned by this not to proceed too far ahead of us, our guide now took very short flights, and, if there was no tree to rest on, took short circles in the air until we came up to him.

For nearly a mile this was kept up, and as the way grew more difficult and the bushes more dense, our own faith in the bird was rapidly giving place to irritation at what began to look very like a trick of the others at the expense of our inexperience.

However, the boys seemed so genuinely astonished at our doubts, that we still followed on.

At last the bird stopped altogether in a small clump of some dozen mimosa-trees, all growing within a few feet of one another.

When we came up to it, instead of, as heretofore, flying off in a straight line, it just flitted on to an opposite tree, remained there a few moments, and then back to its previous position. This was its signal that the nest was close at hand. The boys examined the trunks of the trees round most carefully, but could find no opening where the nest could by any possibility be situated. The bird grew more and more angry and indignant at what it evidently considered our extreme stupidity, and flapped its little wings and redoubled the shrill cries which it had ceased to utter while leading us to the spot. At last, losing all patience, it actually settled on a piece of the stem of one of the trees it had been persistently flitting backwards and forwards in front of. The boys now, paying more attention to this particular tree, perceived just above where the bird had perched a small hole, and round it a kind of cement. While we were watching a bee flew out, which made it certain that the nest was within the trunk. The driver of Woodward's waggon, who was an old hand at the work, at once climbed up the tree with a hatchet, and under his direction the others collected armfuls of dried grass. Taking a large handful of this he lighted it, and then struck with the hatchet at the mouth of the narrow hole.

At the first blow a quantity of mud, wax, and decayed wood fell to the ground, with which the bees had skilfully walled up a large portion of the decayed wood. Out swarmed a cloud of bees, and now his burning grass came into operation. As quickly as they flew out their wings were singed in the flames, and they dropped helpless to the ground. A. and myself had retreated to a safe distance from the tree; but the boys stood close up, hardly caring if they were stung or not.

In a very few minutes all the occupants of the nest were destroyed; but new comers were constantly arriving, which made close quarters any thing but pleasant. Not much cutting was necessary to lay bare a large portion of the combs, which were laid horizontally across the entire width of the hollow portion of the tree. The upper combs are always the freshest, and therefore the best, so we at once set to work to fill our three buckets with them. When these were all full to the top, there was still enough honey left to fill at least another three or four; for the combs went down to the very bottom of the tree, as we discovered by forcing down a long stick. There was already more than enough honey for all our wants, and the boys were confident that they could obtain fresh supplies in the same manner as often as they cared to follow the birds, so we left the remainder where it was for the bees which survived our felonious attack. Before leaving we carefully fixed a comb filled with honey on the nearest bush, and our late guide flew down and commenced his well-earned repast as soon as we had turned our backs on the spot. The Kaffirs would much prefer not to take any honey at all, than depart with their spoil and not leave a portion for the bird. They firmly believe that if they thus defraud the bird of its just rights, it will follow them up, and at a future time, instead of leading them to honey, will entice them into the lair of a lion, or to a nest in which some deadly snake lies concealed.

It is impossible to explain the marvellous characteristic of the Honey-bird, without crediting it with powers of reasoning which are almost human. No one who has once witnessed the manner in which the bird will persistently follow a waggon for miles, but will leave it and join the first man or men who leave the trek and evince a disposition to follow, can for an instant believe that the bird betrays the nest unconsciously. How the birds have acquired the knowledge that men desire honey, and that they have the power to gratify the desire by forcing open the hidden hoards—how they calculate, as they assuredly do, upon themselves reaping the benefit of being accomplices and instigators of the theft, and how they have learnt to lose their natural fear of mankind, and trust themselves almost within his grasp—how they are taught their various devices for attracting man's attention and leading him to the spots where the bees have made their nests, are questions which, perpetually discussed amongst those who, although not scientific naturalists, have spent their lives observing nature, can never be answered or explained.

XXVIII.—*Notes of a Collecting-trip in the New Hebrides, the Solomon Islands, New Britain, and the Duke-of-York Islands.* By E. L. C. Layard. *With Remarks* by E. L. Layard, F.Z.S. &c.

At the close of last year I was asked by Lieut. Richards, R.N., commanding H.M.S. 'Renard,' if I would like to go with him to the above-named islands, if, as was probable, he should be ordered there. Of course I would. I had seen the illustrations of the Rev. G. Brown's birds in the 'P. Z. S.,' and longed to see the birds themselves. In the beginning of last April I received a letter from Lieut. Richards, dated in Sydney, and saying he would very shortly arrive in Noumea and I must be ready. The first thing was to take my favourite collecting-gun to the French Government armoury and have the locks thoroughly overhauled and oiled. Then came the loading of cartridges, and getting together scalpels, arsenical soap, &c.; and on the 19th April we left Noumea, under orders to meet the commodore in Blanche Bay, New Britain, on the 25th May. The weather was very bad, and all the small craft had run for shelter into various little sheltered bays. Something has gone wrong with the usual south-east wind this year. It was at least two months late, and when it did blow, only came in heavy fitful squalls, lasting for four or five days, then succeeded by heavy rain and the north-west wind. It was continually raining during the whole of my excursion, though it was supposed to be the healthy and dry season. This abnormal weather had a curious effect upon the birds. They ought to have recovered from their moulting and have been in full plumage by the end of April; but when I left New Britain, on the 11th September, some were still in full moult, covered with pin-feathers, though breeding. This, of course, had a bad effect on collecting. We arrived in Havannah Harbour, Sandwich Island, New Hebrides, after a bad passage of eight days, and stayed there nine. I at once left the 'Renard,' and went to the house of an old friend, Mr. Glisson, on the other side of the island, to hunt the "Malou" (*Megapodius layardi*), where I had procured it before, nearly three years ago. For five days I searched the forest in vain; it rained the whole time, and I only succeeded in catching a very bad attack of fever and ague and getting one Malou egg (since broken). This fever weakened me very much during the whole cruise, and prevented me skinning any thing during the day and a half we lay in Mahira Harbour, San Christoval Island, Solomons, where I had my severe attack; and though my last actual fever fit was on the 24th May, I am still suffering from the effects.

The birds I got in Havannah Harbour were:—

HALCYON CHLORIS (Bodd.).

Female, moulting, in bush along shore.

GLYCYPHILA FLAVOTINCTA, G. R. Gr.

As usual, among the blossoms of a species of *Hibiscus*, all along the sea-beach.

CLYTORHYNCHUS PACHYCEPHALOIDES, Elliot.

I obtained one specimen only of this extremely rare bird, and the only one I have yet seen in the New Hebrides, in a deep dark ravine, while hunting for *Megapodius*. It is exactly the same as the New-Caledonian bird, apparently with the same habits. I whistled the bird to me from almost a quarter of a mile distance. [I suspect that a *Myiolestes* which Mr. Ramsay informed me some months since he had described from the New Hebrides is this species. I have not his description to refer to.—E. L. L.]

PTILOPUS CORREI, Ramsay.

I again found this green Dove in the place frequented by it during my last visit.

Macropygia rufa, Ramsay.

[We still hold to our opinion that this bird is the *Columba ferruginea* of Forster, described from Tanna; it is so very common among the New Hebrides, that it could not possibly have escaped notice. So also with the former species.—E. L. L.]

Trichoglossus palmarum (Forst.).

At last I procured three specimens of this rare Parrakeet, which I only saw on my last visit. It frequents the cocoanut-trees, feeding on the blossoms, and, if commoner, would be very destructive to the cocoanut-crop. It is not only rare, but exceedingly wary and difficult to get.

Lalage banksiana, G. R. Gray.

I had the pleasure of having a good look at one of these lovely little birds. As I was sitting in a dense thicket of *Hibiscus*, under a cocoanut-tree, waiting for *Trichoglossi*, a full-plumaged bird perched within a yard and stared at me. Of course, at such a distance, I could not fire; and though I sat perfectly quiet, he flew off and disappeared in the bush.

I saw all the other birds procured or noticed in my last voyage (*cf.* Ibis, 1878, p. 267).

[Porphyrio vitiensis, Peale.

A singularly small delicately formed race of this bird, or a species hardly separable from it, has been sent us from Vate Island, New Hebrides. It differs also slightly in coloration, being only faintly tinged with light blue on the neck and chest, the prevailing tint being dark blue, as on the body. We give the dimensions of the bird in the flesh (as it was sent to us alive), compared with the New-Caledonian bird:—

	Vate bird.		New-Caledonian.	
	in.	lin.	in.	lin.
Length	14	0	17	0
Wing	9	0	10½	0
Tail	2	9	4	0
Tarse	3	1	3	7
Middle toe	3	7	4	4
Bill to end of cere	2	5	2	7

The cere in the Vate bird extends further back over the eye than in the New-Caledonian; perhaps in the latter it is contracted more in drying. The Vate bird is close to the Samoan species, and I believe them all to be simply races of *P. vitiensis* of Peale.—E. L. L.]

From Havannah Harbour we steered straight across to San Christoval, one of the Solomon islands, and anchored in Mahira Harbour, after a wretched passage, diversified by fierce squalls, calms, intense heat, and attacks of fever. We arrived at midday, and I went ashore at once. Directly I landed I shot a pair of *Lorius chlorocercus* out of a cocoanut-tree; then an example of *Rhipidura rubrofrontata,* displaying the usual fan-like tail-action of all the genus. I saw a black *Myzomela* flying about, but did not procure it; this bird has been sent home by Lieut. Richards*. A fine species of *Ptilopus* was very common. I was just raising my gun to fire at a beauty, when my head suddenly became so giddy, that I was obliged to sit down and remain quiet till I recovered. I then came back to the beach, abandoning my shooting. It was a very sudden and bad attack of fever! Waiting for the boat, I noticed a white-bellied Flycatcher flirting his tail on the top of "King Tye's" canoe-house. I collected enough strength to hold the little gun straight, and found it was *Sauloprocta melaleuca.* When I got on board I tried to skin the half dozen birds I had, but could not, and was obliged to go to bed instead! Next day also I was too unwell to handle a gun, and could only skin several different kinds of Parrots, a *Dendrochelidon,* and other birds that Lieut. Richards and the boatswain brought on board. The day after (22nd May) we set sail for New Britain, and anchored in Blanche Bay during the first week in June. Blanche Bay is a splendid harbour, about fifteen miles in length, measuring from Gazelle Point to the head of the bay. This side, the southern, for the greater part of its length, rises with a gentle slope towards the great central chain of mountains, and is a waving mass of cocoanut- and banana-trees as far inland as we could distinguish. The head of the bay is formed by a semicircle of steep hills, rising right out of the water for some 600 feet. They are scored by steep ravines, with knife-like edges between them; and the amount of climbing to be done in a morning's shooting is a thing to be remembered. The northern arm of the bay is formed by three apparently extinct volcanos, known as the "Mother" and the "North" and "South Daughters." The "North Daughter" had all the forest burnt off its slopes at the beginning of 1878, by the sudden upheaval of a new volcano close to the sea. Between the "South Daughter" and the "Mother" is a low range of hills, the sides furrowed by deep ravines and clothed with thick forest. From the base of that range of hills to the sea is a flat plain, with a breadth of about two miles in its widest part, covered with long coarse grass, and interspersed with groves of forest trees. The tree-covered ravines and the grassy plain were my hunting-grounds for the most of our six weeks' stay in Blanche Bay. Lieut. Richards surveyed the Duke-of-York archipelago, finding twelve islands and three harbours, instead of one island and one harbour, as laid down in the ordinary chart. Of course I was out shooting every day that the weather permitted. We also went to Ferguson's Bay (subsequently misnamed "Port Webber" by the Germans) to chastise some pirates who had plundered a wrecked English vessel. I got some birds there also. Most of the species in my collection are common both to New Britain and Duke-of-York group; those we did not procure in both places I will particularize.

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* [See Ibis, 1879, p. 439.—Edd.]

HALIASTUR LEUCOSTERNUS, Gould.

Found in the Solomon Islands also. I found a pair breeding on the topmost dead branch of an enormous bread-fruit tree, but the natives would not climb up for me.

ASTUR ETORQUES, Salvad.

Not common. Found a nest with female sitting, after the male had been shot by the boatswain; but the natives would not get it.

Calornis cantor (Gm.).

This short-tailed Starling is much commoner in New Britain than on the Duke-of-York Island. It nests only in rotten cocoanut-trees, one pair to a tree. When a cocoanut-tree dies the crown falls off first, the top of the stem decays down the centre, and in the hole thus formed the Starlings nest. The trunks were always so rotten before the nests were made in them, that even the little native boys would not climb them, though offered large rewards in pipes and tobacco; and I never saw an egg of this species.

Calornis metallica (Temm.).

The Long-tailed Starling is much commoner on the Duke-of-York Island than in New Britain. It nests in large colonies, each pair having a separate nest, big enough to fill an ordinary-sized bucket. There are hundreds of these nests on one tree, and the more isolated and conspicuous the tree is, the better they appear to like it. I induced some natives to make a bamboo ladder, and very soon had some of the eggs. They were nearly all hatched out by the end of August. The ground-colour is greenish white, more or less pale, spotted and blotched throughout with dark reddish brown and purple. These markings are often crowded together at the obtuse end. In some specimens they are confined to that end only; indeed, in the large series before us, these markings, in shape and size, differ considerably. The same may be said of the sizes of the eggs themselves; but a good average one is, axis 1″ 2‴, diam. 9‴.

Gracula kreffti, Scl.

Graucalus lineatus.

New Britain: not seen on the Duke-of-York Island during our visit.

Lalage karu, Less.

Common wherever we went.

Monarcha verticalis, Sclater, P. Z. S. 1877, p. 99.

This beautiful Flycatcher is found only on the main island, Duke-of-York group, and on none of the other islands composing the archipelago. It builds a lovely little cup-shaped nest, composed of fibres and lichens, covered over with cobwebs, and placed in the branching head of some young sapling, about five feet from the ground, in the densest and gloomiest part of the forest. The eggs are two in number, ground-colour pale pink, spotted throughout with small spots of the same colour, only darker, which coalesce and form a broad dark ring near the largest diameter; axis 11‴, diam. 8‴. These eggs I took myself.

MONARCHA RUFOCASTANEA, Ramsay.

One specimen obtained in the Solomon Islands.

MONARCHA ALECTO (Temm.).

Nests obtained on Duke-of-York Island during August; they are built on the same principle as those of *M. verticalis*, but of coarser materials. The eggs are two in number, and those from different nests vary considerably. Some are pale green, sparsely spotted with dark and light purple, in the form of a ring, at the greatest diameter, with only a straggling spot here and there on the rest of the surface; others are dull white, with the circle of spots dull and confused, as if "smudged." It is right that I should state that I never actually took the eggs with my own hands; those I obtained were brought in by the natives.

SAULOPROCTA MELALEUCA (Q. et G.).

One nest only of this common bird was found by Lieut. Richards, on the bare dead branch of a submerged tree that had fallen into the sea. It was of the usual cup-shape, and contained two eggs, of a warm cream-colour, tinged with brown, spotted, chiefly in a ring, at the largest diameter, with irregular indistinct purple and brown dots and blotches; axis 10‴, diam. 7½‴.

RHIPIDURA SETOSA.

Nesting in August, but I could not find any eggs.

PACHYCEPHALA MELANURA.

One specimen only, from Blanche Bay; but it is very common on the two islands of the Duke-of-York group that lay nearest to that place. One of these islands is not an acre in extent, with one tree in the centre of it, and the rest all scrub. Separated from it by a deep-water channel, about one one hundred yards across, lies the island of "Palakura"*. This is a somewhat larger island, long and narrow, not more than a mile at its greatest length. These two small patches of upheaved coral are completely swarming with birds, especially Pigeons. When one of the rare trading-vessels is anchored anywhere within ten miles, they send a boat's crew "gunning" on Sunday morning, and the men never come back with less than a hundred big Pigeons. The small island was strewed with broken fragments of the eggs of the two large Pigeons (*Carpophaga vanwycki* and *C. rubricera*) and of the Heron (*Ardea sacra*), sucked by rats and iguanas. Though the other ten islands of the archipelago are all closely adjoining, none of us saw a "Yellow-belly" anywhere else, except my own solitary specimen from Blanche Bay.

DICRURUS LÆMOSTICTUS, Scl.

This scarce and very wary Drongo is, as far as I saw, only found in the dense dark forests that clothe the steep ravines down the mountain-sides. Its quick shrill note is heard a long distance.

CISTICOLA RUFICEPS, Gould.

This little bird is only found in the long grass on the level land between the sea and the hills.

PHILEMON COCKERELLI, Scl.

Native name "Akou;" very abundant in New Britain.

CORVUS ORRU.

A difficult bird to approach.

DONACICOLA SPECTABILIS, Scl.

This little Finch was found only in Blanche Bay. It was in large flocks, diligently hunting for grass-seeds on the ground in the banana- and cocoanut-plantations. Very easy to approach. I killed seven at one shot.

NECTARINIA ASPASIA.

This lively bird is very common, though in the height of the breeding-season, July and August, I could not find any eggs. The nest is the usual dome-shaped structure of soft vegetable matter and cobwebs, hanging on a bare branch or small stick, sometimes close to the ground.

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* See P. Z. S. 1879, p. 446 *et seqq.* as to the birds obtained by Mr. Brown on this island.

NECTARINIA FRENATA.

Observed in New Britain only. The eggs, two in a nest, are of a pale grey-brown, indistinctly mottled, very closely at the obtuse end, with a darker shade of brown; axis 7½‴, diam. 6‴.

HIRUNDO TAHITICA.

Scarce. I found one nest on a ledge under an overhanging rock, made, as usual, of mud, the depression lined with feathers. This was during the last week in August, and the three eggs were just on the point of hatching. They are of a very pale pink ground-colour, generally spotted throughout with brown-madder spots, which run very thickly together, and form a ring at the greatest diameter. The only specimens procured are all more or less damaged in extracting the embryos, but measure about, axis 10‴, diam. 6½‴.

COLLOCALIA CINEREA.

The common Swift of these seas; found throughout the New Hebrides, Solomon Islands, Duke-of-York group, and New Britain.

DENDROCHELIDON MYSTACEA.

Fond of perching on high dead branches of trees; interspersed over the grass-country. The young, in a curious mottled white and brown plumage, were flying about during August.

CAPRIMULGUS MACRURUS.

Procured in Blanche Bay. None seen on the Duke-of-York Island. Lieut. Richards shot two species of Owls in Blanche Bay; but Mr. Brown's two native hunters and taxidermists assured me that neither Owls nor *Caprimulgidæ* were found in Duke-of-York Island, though common in New Ireland and New Britain.

HALCYON ALBICILLA.

We did not find this handsome bird in New Britain, with its sandy beaches. Its habitats are the bold rocky shores overhanging the surging waves in the Duke-of-York archipelago. It was in full breeding during August, but I could not find a nest. Native name "Ki-ki-outam." Food entirely fish.

HALCYON SANCTUS, Vig. & Horsf.

Found on the sea-beaches and marshes only. Another *Halcyon*, much larger, we got only in the thick parts about the mountain-slopes; we *never* observed it mixing among its smaller brethren on the open shore. Their habitats being so different, their food was different also. The large one ate beetles, locusts, and small lizards, and the lesser one contented himself with fish and sea-worms. Native name for both "Akiki."

[This "larger *Halcyon*," I was pleased to find, is identical with a bird from the Solomon Islands which I have named *H. tristrami**. L. L. was unaware of my having done this, and his independent observation on the differences of their habits and localities are confirmatory of my view of their distinctness.—E. L. L.]

TANYSIPTERA NIGRICEPS, Scl.

From Duke-of-York archipelago. Lives in the dense forest, and is very shy and difficult to approach. I shot one (a male) in a tall tree, and my native pointed me out a deserted ants' nest, about 25 feet from the ground, with a small hole just visible in it. Of course a promise of "'baccy" sent him up the tree; but unluckily there were no eggs. The ants' nest was a round mass, a yard in circumference, of rotten wood and earth. The Kingfisher appeared to have hollowed out a little tunnel communicating with a chamber. The native assured me that the bird sat in this chamber, with its long tail lying along the tunnel. He told me the eggs were two in number and quite white, and promised to get me some, but did not. This was in August. Native name "Gea Gea."

ALCEDO MOLUCCENSIS, Blyth.

Found on the sea-shore only.

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* [Mr. Layard's description of this species does not appear to have been yet published; but Canon Tristram has received an example of the bird, and believes it to be a good species.—EDD.]

Chalcites lucidus.

Common in New Britain.

Cacomantis insperatus (Gould).

Both islands.

Centropus ateralbus, Less.

New Britain only. Our boatswain said it was excellent eating, and always shot them. I preferred Pigeons.

Centropus violaceus, Q. et G.

Two specimens from Gazelle Point, one from Ferguson's Bay. Found in New Ireland also, but not on the Duke-of-York Islands.

Eudynamis tahitensis, Lath.

The only specimen seen during the whole cruise I procured on the Duke-of-York Island, close to Mr. Brown's house. [Extends down the New Hebrides to New Caledonia.—E. L. L.]

Eudynamis picatus, Müll.

Both islands.

Scythrops novæ-hollandiæ.

One specimen from Blanche Bay; commoner on the Duke-of-York Island.

Eurystomus crassirostris, Scl.

Feeds on beetles.

Merops ornatus.

New Britain; none seen on the Duke-of-York Islands.

Cacatua ophthalmica, Scl.

Very common in New Britain, and makes capital soup. The natives keep many tame ones; name "Tui Tui."

Lorius hypœnochrous, Gray.

Obtained from New Britain only.

Trichoglossus massenæ, Bp.

We have this bird from New Caledonia, Loyalty Islands, New Hebrides, Solomons, New Britain, and New Ireland; none were seen on Duke-of-York Island.

TRICHOGLOSSUS SUBPLACENS, Scl.

This lovely Parrakeet confined itself entirely to the cocoa-nut-blossoms.

NASITERNA PUSIO, Scl.

Creeps, like a Nuthatch or European Creeper, round the tree-trunks, in small parties; very fearless; feeds mostly on the seeds of parasitic plants.

ECLECTUS POLYCHLORUS, Scop.

Very common; good eating. A native brought me two fresh eggs, showing me the parent birds, and pointing out a hole in a big tree-stem, where a rotten branch had fallen off, as the entrance of the nest he had just robbed. The eggs are pure white, but apparently much soiled, either by the débris of rotten wood or by the parent bird. Axis 1″ 6‴, diam. 1″ 3‴, blunt at the smaller end. The red and blue birds are females, the green ones the males.

CARPOPHAGA SPILORRHOA, G. R. Gray.

I procured three specimens of this bird in Ferguson's Bay; Lieut. Richards shot another; these were the only examples we saw of this fine species. It did not appear to be at all wary in its habits. I got a pair at my first shot, and while admiring their elegance, another bird pitched in the same place, and was quickly placed beside the first two. Richards shot his from the same tree directly afterwards, making two pairs. The white traders told me the birds were found nowhere else.

CARPOPHAGA VANWYCKI, Cassin.

Much commoner about the Duke-of-York Islands than in New Britain. In perfect swarms on "Palakura" and the smaller Pigeon island.

CARPOPHAGA RUBRICERA, G. R. Gray.

Multitudes in Blanche Bay. We used to feed the whole of the 'Renard's' crew on them. An egg, said to belong to this species, was brought by a native, who identified it on seeing a skin. It is of a pure shining white, similarly shaped at each end. Axis 1″ 10½‴, diam. 1″ 5‴.

CALŒNAS NICOBARICA (Linn.).

Obtained on the Duke-of-York archipelago. It lives in dense thickets, scratching on the ground among ferns and brambles, but taking to the tops of the highest trees on the slightest alarm. The white tail is very conspicuous as the bird rises out of the dark undergrowth.

MACROPYGIA BROWNI, Scl.

I only saw one live pair of this very rare Pigeon during all my excursions, on the main Duke-of-York Island. One wretchedly dirty specimen was brought to me by a native, floating in salt water at the bottom of his canoe; but Lieut. Richards was fortunate enough to see, and kill, a lovely pair while surveying a lonely part of the island.

MACROPYGIA CARTERETIA, Bp.

Lives in dense bush, and is very wary.

PTILOPUS INSOLITUS, Schleg.

I wasted many hours in New Britain hunting after the few individuals of this species. When we arrived at the Duke-of-York Island we found the banian-trees crowded with them, and had many an excellent pie in consequence!

PTILOPUS SUPERBUS, Temm.

Wary and somewhat scarce.

SYNŒCUS AUSTRALIS (Lath.)*.

We found this little Quail living in the long grass in Blanche Bay. If we had had a good pointer we might have had fine sport.

TURNIX MELANOTUS (Gould).

Found mostly in the "sweet-potatoe" plantations on Mioko Island, Duke-of-York group. Eggs brought by natives, and identified by them upon seeing the skins, are olive-brown, minutely speckled throughout with tiny black or dark brown pin-point spots; sometimes these coalesce and form unequal patches and smudges. In shape these eggs are usually sharp-pointed at the small end; the greatest diameter is near the middle, the other end is very obtuse; axis 12‴, diam. 9½‴.

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* [This is no doubt Hartlaub's *Excalfactoria lepida*. See Ibis 1880, p. 135.—EDD.]

CASUARIUS BENNETTI.

In Ferguson's Bay I was close to one, and its note reminded me of an asthmatic old man. The boatswain was the only one of us to catch a glimpse of this noble bird. The proper native pronunciation of the name has a *p*, not *k*, at the end of the word. It is "Moorup," not "Mooruk." I found the contents of the eggs made capital omelettes, though my two messmates could not be induced to touch them, and I had the advantage of keeping the shells. The price of an egg was a fourpenny knife. We had a tribe of natives engaged to make a regular country hunt for us after "Moorups" and kangaroos. They enclose a great extent of the grass-country and set fire to it all round, leaving only a narrow opening, through which the frightened birds dash, exposed to the spears of the hunters. The 'Danae' arrived with the 'Renard's' sailing-orders just before our projected hunt was to take place, and so we missed it.

MEGAPODIUS EREMITA, Hartl.

This bird is a perfect nuisance in Blanche Bay, the whole place, both on the grassy flats and the bush-covered hill-sides, being so undermined with its nesting-holes, that we were continually stumbling into them, notwithstanding all our care in walking. Like domestic fowls, they lay indiscriminately in each other's nests. Some of these are regular excavations, six or seven feet deep. Going shooting one day, I saw two flat white things moving in the mouth of a small cavern by the side of the road. Upon closer inspection they proved to be the upturned soles of a native's feet, their owner being head downwards, nearly six feet underground. He presently emerged with five eggs, which I purchased on the spot for a penny stick of tobacco. The consumption of eggs by the 'Renard's' thirty men was something enormous, the price alongside being six eggs for one stick of tobacco. The birds were very numerous, and when flushed took to the trees. From what the natives and white traders told me, I think they breed all the year round. I was there three months, and the quantity of eggs was practically unlimited the whole time. The birds are very good eating, both roasted or as soup.

One day I made some natives guide me to a place up the mountains which they told me was an especial breeding-place. They led me a dreadful tramp! climbing up and down almost perpendicular ravines, where I had to swarm up banian-tree roots like a monkey. At length, just as I was about giving up the hunt, they brought me to a steep ravine, thickly covered with dense bushes on both sides. This ravine was terminated by a huge wall of rock, under which was an open space of about twenty square yards, all of small round volcanic pebbles. This place bore evident signs of being continually dug over, and my natives got a dozen eggs from among the pebbles without any loss of time. How they escaped being broken when they were covered up, I cannot make out, as the shells are so thin they invariably crack when boiled. I was very fond of the eggs, cooked any way, though my two messmates, the officers of the 'Renard,' were not. The great holes in the plain are easily accounted for. A Megapode scratches a hole and buries her egg; a native comes along, rakes out the egg with his hands, but does not fill the hole up again. Another bird lays at the bottom of the excavation, and the native digs it out again, until at length a perfect tunnel is formed in the soft volcanic earth. The birds were not nearly so common on the Duke-of-York Islands as in Blanche Bay. The eggs are a perfect oval; pale cinnamon-colour; axis 3″, diam. 1″ 10‴.

NYCTICORAX CALEDONICUS (Gm.)?

Found everywhere (L. L.).

[The Nankin Night-Heron brought by L. L. differs very considerably from New-Caledonian birds, so much so, that I should propose, if, on examination of a series of specimens, the variation proves constant, to separate it under another name.

The differences are as follows:—The upper parts are a clear cinnamon-red; in *N. caledonicus* they are almost brown. The black crest does not come so far down the neck as in *N.*

caledonicus. Chin, mesial line of chest, and rest of body *pure white,* not stained with yellow, as in the other. Under wing-coverts pure white, not stained with cinnamon. Bill shorter, but more robust in width and depth, making a very marked feature; other measurements equal.—E. L. L.]

RALLUS PECTORALIS.

Eggs, said to be of this species, were brought to me by natives in Blanche Bay. They pointed to a bird running across the marsh in front of us, and said that that was the parent of the eggs.

[The eggs brought by L. L. as of *R. pectoralis* (a specimen of which is in the collection) are precisely similar to some eggs brought from the Bamptons or Chesterfield Islands as the eggs of this bird, which the sailors and others there call a "Quail." I have little doubt from this that they are correctly identified. They are of a delicate salmon-coloured ground, blotched, chiefly at the obtuse end, with red-brown and faint purple spots, blotches, and splashes. Axis 1″ 4‴, diam. 13‴.

Besides these L. L. brings six eggs, decidedly those of a Gallinule, all brought in at the same time by a native, and evidently from one nest. They are probably those of *Porzana moluccana,* Wall., but no Gallinule was seen by any of the party. They are very pale salmon-colour, almost white, spotted and blotched throughout with red-brown and faint purple. Axis 1″ 7‴, diam. 14‴. These are from Mioko Island, Duke-of-York group.—E. L. L.]

CHARADRIUS FULVUS (Gmel.).

Common, but very difficult to get near.

ACTITIS INCANA (Gmel.).

Found in small families of four or five individuals.

TRINGOIDES HYPOLEUCUS (Temm.).

Generally solitary.

From New Britain I sailed in H.M. Corvette 'Danae' to New Hanover. None of us landed, as we had anchored off a mangrove-swamp, and Captain Ferguson, the "King of the Solomon Islands," who was showing us round, had been attacked by the natives in that same place on his last visit there. The natives brought off a live specimen of *Carpophaga rubricera,* and a pair of *Halcyon albicilla* flew by the ship. I also saw a pair of Ducks settle in the water near the shore. With the ship's glass I could plainly see they had light-coloured heads, and belonged to a species I did not know. Thence we steamed to an anchorage in the Admiralty Islands, where a specimen of a *Carpophaga* allied to *C. vanwycki** was shot, while *Halcyon albicilla* and *Lorius hypœnochrous* flew over the ship.

From the Admiralty group the captain's intention had been to have visited Ontong Java, or Lord Howe's Archipelago, and the Abgarris or Faed Islands. Unfortunately our supply of coal got short, and my brother collectors can imagine my disappointment when I heard orders given to steer for the Solomons. I do not know of any skins having arrived in Europe from these islands. Captain Ferguson said that Orange-Cowries were quite common in the Abgarris group.

We anchored in Marau Sound, Guadalcanar Island, Solomon group, during the last week in September. As the natives had murdered one of Captain Ferguson's traders, and stolen £800 worth of goods, some seventy men were landed from the 'Danae,' at 3 A.M., and after marching some miles through the bush, managed to surround a village of the murderers at early dawn, and gave a good account of them. I took advantage of the opportunity, and landed, close to the ship, in company with a Captain MacDonald, an old Fijian acquaintance I had fallen in with anchored in Marau Sound. He took three of his natives with him, all armed with rifles, and we had our guns and a revolver apiece. Though we could distinctly hear the reports of the "Martini-Henrys" round the village, we were not molested by any of the fugitive natives, and I was enabled to add to my small collection the following species :—

HERMOTIMIA MELANOCEPHALA.

Feeding on *Hibiscus*-blossoms.

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* [No doubt *C. rhodinolæma,* Scl. P. Z. S. 1877, p. 555.—EDD.]

CACATUA DUCORPSI.

Feeding on the fruits of old mangrove-trees some distance up an inland arm of the sea.

EOS CARDINALIS.

Also in the old mangrove-trees. This bird is very tough-skinned, and will fly away after receiving a heavy charge of shot.

TRICHOGLOSSUS MASSENÆ.

Same locality as *Eos cardinalis.*

PTILOPUS GEELVINKIANUS (Schleg.) ?

At least we imagine it to be so, from the lovely claret-coloured throat. I heard a Dove cooing, and after some hunting, saw the bird sitting on a bare branch. I fired, and, to my great delight, down came the pair.

CARPOPHAGA, sp. inc.

Unknown to us; has a red knob on the bill.

[This is, no doubt, *C. rufigula,* Salvad. (see Ibis, 1880, p. 131).—EDD.]

BUCEROS RUFICOLLIS.

I saw this bird, but did not procure it. Captain MacDonald sent us a skin from this locality two years ago.

While hunting about among the mangroves, I heard the loud note of a bird that sounded very like a *Tanysiptera.* Mentioning the circumstance on board Captain Ferguson's steamer, the master of a trading-vessel in at the time told me it *was* a *Tanysiptera,* and that he himself had shot them in the identical place. He added, "I ought to know the bird, for I was captain of the missionary steam-launch on the coast of New Guinea for five months with D'Albertis on board, and he brought birds off and skinned them often enough."

I have some more birds from Blanche Bay that I cannot quite identify.

First. A large blackish-brown Hawk, of which both the larger wing- and tail-feathers are crossed with broad yellowish-white bars. It had all the habits of a Harrier.

Second. *Sauloprocta tricolor,* I fancy. The only specimen seen by any of us during the trip I shot in a dense thicket in Blanche Bay.

Third. *Sauloprocta* —— ? This bird is probably well known, as I saw skins among Mr. Brown's duplicates; but our 'Zoological Proceedings' not having reached us for three quarters of a year, we cannot identify it. It appears to be found only on Palakura and the other little "Pigeon island," the two outer islands of the Duke-of-York group, in company with *Pachycephala melanura.* Mr. Brown claims to have purchased these two islands from the natives.

Fourth. *Malurus* —— ? A species much resembling our old friend *Malurus* (*Drymœca*) *africanus* of the Cape of Good Hope, with the same decomposed pointed feathers in the long tail. Head rufous, faintly striped with dark brown; back rufous-brown, with a black centre to each feather. Underparts brown on the sides, and white from the chin down the centre to the vent. It is only found in the long dense grass round the shores of Blanche Bay. It makes one short flight, and without a dog I found it absolutely impossible to flush a second time. The way I procured my specimens (a pair only) was by waiting patiently and taking a flying shot*.

Fifth. *Dicæum* —— ? A minute species, of which the female only was procured. Above dark grey, rump crimson; beneath, throat, chest, centre of belly, and vent isabelline white; flanks yellowish olive. Shot in Blanche Bay, in a thicket overgrown with creepers on the sea-shore. The male has a red spot on the breast, not a band, as figured in the P. Z. S. 1877, pl. xiv., as occurring in *D. eximium.* It was obtained by Lieut. Richards.

Sixth. *Megapodius* —— ? A small Megapode, which we think may prove to be the young of *M. eremita,* occurred. It is throughout of a dark brown, more or less spotted and barred on the upper surface with a lightish red-brown; some of the spots on the back assume an arrow-headed or inverted Λ-like shape; below the markings are very inconspicuous and almost obsolete. Length 5½ to 6 inches, wing 3½; tail a mere "fluff" of feathers; nails very long and sharp-pointed. The natives call this bird by a different name to that they give the large Megapode, and look upon it as a distinct bird.

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* [This is, no doubt, Sclater's *Megalurus interscapularis,* P. Z. S. 1880, p. 65, pl. vi., sent home by Mr. Brown.—Edd.]

From Marau Sound we proceeded to Sydney, passing within 150 miles of Noumea. I spent a short time there, and finally reached home after eight months' absence.

XXIX.—*Note on the* Rallus sulcirostris *of Wallace and its Allies.* By P. L. SCLATER.

(Plate VI.)

IN consequence of some remarks kindly communicated to me by Count Salvadori in reference to my recently described *Rallus insignis* (P. Z. S. 1880, p. 66, pl. viii.), my attention has been directed to *Rallus sulcirostris* of Wallace, and I have been led to examine the typical examples of this species in the British Museum. A few short notes on this little-known Rail and its relatives may not be unacceptable to ornithologists.

Rallus sulcirostris was described by Mr. Wallace in 1862 (P. Z. S. p. 345), in his memoir on the birds of the Sula Islands, as "very near *R. celebensis,* perhaps only a variety of that species; the chin and throat are, however, generally black, or but slightly irrorated with white; the bill is decidedly longer and less elevated in proportion at the base; the nasal furrow is longer, and the nostrils longer and linear; on the sides of the lower mandible is a furrow reaching half the length of the bill."

Schlegel, in 1865 (Mus. des P.-B., *Ralli,* p. 22), according to his usual practice when the Leyden Museum does not possess an example of a species, refers *Rallus sulcirostris* to *Rallus* (*Hypotænidia*) *celebensis,* and commits the additional error of giving its locality as "Bouru," not the Sula Islands.

The species does not appear to be again mentioned until 1875, when Count Salvadori, in his article upon Beccari's and

Bruijn's collection from Celebes, after giving some notes on the examples of *Hypotænidia celebensis* in the collection, states his belief that the variations thus presented tend to confirm Schlegel's views as to the identity with it of *Rallus sulcirostris*[*]. But in a subsequently issued article, Count Salvadori is inclined to come to a different opinion. In his memoir on the new birds of New Guinea and the Papuan Islands, published in the same volume[†], Count Salvadori records the occurrence of three examples of a Rail in the Papuan subregion, which he refers doubtfully to *Hypotænidia celebensis*. Two of these were obtained in Salawatti, and the third at Dorei-hum, on the north coast of New Guinea. Count Salvadori observes that these examples are considerably larger than many others seen by him from Celebes. The beak especially surprised him by its large dimensions; the throat was of a pure black, without any white spots; and the white remiges below of a more obscure colour. From these differences Count Salvadori came to doubt whether the birds did not belong to a distinct species, perhaps to *H. sulcirostris* (Wall.), which, contrary to his former opinion, might yet turn out to be a good species[‡].

In this last view of Count Salvadori's I fully share. In the British Museum there is an excellent skin of *R. sulcirostris*, besides a mounted specimen in the gallery, being the types of the species as described by Wallace. Although, as

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[*] Ann. Mus. Civ. Genova, vii. p. 677. [†] Ibid. p. 976.

[‡] Since this was written, Count Salvadori has kindly forwarded to me one of the Salawatti specimens of this Rail for comparison. While it agrees with *R. sulcirostris* in having the throat black, though this colour does not extend quite so far down, it is at once distinguishable by its much larger size and its longer, stronger beak. I do not think it can be properly associated with *R. sulcirostris* or *R. celebensis*; but I am of opinion that it must stand as a distinct local form of this section, under the name *Hypotænidia saturata*, which Count Salvadori has attached to it in his MS. It may be shortly characterized as follows:—

HYPOTÆNIDIA SATURATA, Salvadori, MS.

Similis *H celebensi*, sed gutture nigro, rostro longiore et fortiore, et corporis crassitie majore diversa: long. tota 12·5, alæ 6·0, caudæ 2·0, tarsi 2·3.

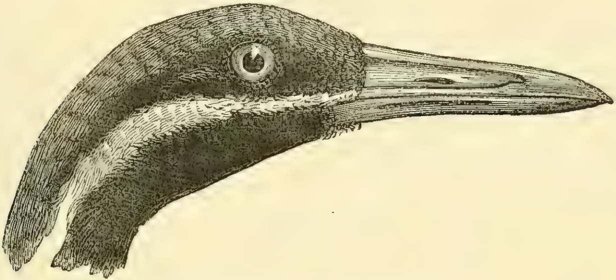
Hab. Ins. Salawatti et Papua borealis.

Wallace states, *Rallus sulcirostris* is closely allied to *R. celebensis,* and has a similar white line on each side of the head, it differs from that species in its smaller size and in the intense black of the throat, which has no appearance of cross bands. Further distinctive characters are to be found in the longer stronger bill, and in the strongly marked sulcus along the lower mandible, whence Mr. Wallace derived its name. I have no doubt of its being an excellent species, which should stand as follows:—

HYPOTÆNIDIA SULCIROSTRIS. (Plate VI.)

Rallus sulcirostris, Wallace, P. Z. S. 1862, p. 345.

Hypotænidia sulcirostris, Salvad. Ann. Mus. Civ. Genova, vii. p. 81.



Head of *Hypotænidia sulcirostris.*

Suprà fusca olivaceo perfusa; capitis lateribus et gutture toto nigris, strigâ rictali cervicem utrinque descendente albâ; abdomine et subalaribus nigris albo transfasciatis; remigum pogoniis internis fascias obsoletas ostendentibus: long. tota 12·5, alæ 5·7, caudæ 2·3, tarsi 2·0, rostri a rictu 2·8.

Hab. Inss. Sula (*Wallace*).

Obs. Proxima *H. celebensi,* sed gutture nigro, crassitie corporis minore, et rostro robustiore diversa.

The genus *Hypotænidia* was instituted by Reichenbach in 1852 (Naturl. Syst. d. Vögel, p. xxiii), with *Rallus philippensis* as its type*. Schlegel (Mus. des Pays-Bas, *Ralli,* p. 21) has adopted this generic term for a series of "Rails of the East Indies and Australia, with rather robust beak, more or less straight, and of the length of the head: below, either entirely or in part, including the remiges and wing-coverts, black, with white cross bands: size equalling or exceeding a little that of *R. aquaticus*." I am disposed to believe that this group is a natural one, although there are but slight structural characters to distinguish it from true *Rallus*.

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* Reichenbach gives as his type "*Rallus pectoralis,* Cuv.," which is =*Rallus lewinii,* Sw. (*cf.* Puch. Rev. Zool. 1851, p. 276); but he refers to his figure, which is simply a copy of Gould's *Rallus pectoralis* (B. Austr. vi. pl. 76), *i. e.*=*R. philippensis.*

Schlegel assigns four species to *Hypotænidia*, arranged in two sections, as follows:—

A. Whole body below with white cross bands; upper surface and wings dark olive-brown; sides of head black, with a white line from the angle of the mouth to the neck.

1. *H. torquata* (Linn.), of the Philippines.
2. *H. celebensis* (Q. et G.), of Celebes.

B. Lower surface below the neck with white cross bands; upper surface, starting from the neck, with white spots or bands.

3. *H. philippensis* (Linn.), of the Philippines, Celebes, Australia, New Caledonia, and the Pacific Islands.
4. *H. striata* (Linn.), of India, China, Philippines, Java, &c.

To these species we must now add *H. sulcirostris* and *H. saturata*, as above mentioned, and the fine new *Hypotænidia insignis*, which I have lately described from New Britain. *H. sulcirostris* and *H. saturata* should succeed *H. celebensis* in Section A, while *H. insignis* will form a section *per se* next to section A, but differing in the absence of the white stripes on each side of the head.

XXX.—*Notes on a 'Catalogue of the* Accipitres *in the British Museum' by* R. Bowdler Sharpe (1874). By J. H. Gurney.

[Continued from p. 217.]

Mr. Sharpe unites the genera *Leptodon* and *Regerhinus*, dropping, as regards the former, Cuvier's earlier synonym of

Cymindis, on account of its having been otherwise appropriated some years previously to Cuvier having so used it. It seems to me, however, that *Leptodon* and *Regerhinus* ought to be regarded as distinct genera, for the reasons which have been well set out by Mr. Ridgway in the remarks on this subject contained in his 'Studies of the American Falconidæ,' pp. 152, 156, and especially on account of the tooth in the tomia of the upper mandible, by which *Leptodon cayennensis*, the only species of the genus *Leptodon*, is distinguished. The genus *Regerhinus* has (to use Mr. Ridgway's words) "tomia without indentations or perceptible sinuations," though it is right to mention that Léotaud, in his 'Oiseaux de l'île de la Trinidad,' describes, at p. 40, the type specimen of his "*Cymindis pucherani*," which in other respects seems to have agreed with the not very uncommon melanistic phase of *Regerhinus uncinatus*, as having an upper mandible, of which he says, "son bord sans être tout-à-fait droit . . . . n'est cependant qu'à peine festonné ; à sa naissance on pourroit croire qu'il existe une petite dent ; sa pointe très-effilée représente absolument celle du bec du *Cymindis uncinatus*."

The toothless upper mandible of *Regerhinus* is, I think, an indication that it approximates more nearly than *Leptodon* to the genus *Pernis*, which I last considered, and I therefore propose to refer to it next.

The most widely spread and best-known species of the genus *Regerhinus* is *R. uncinatus*. Mr. Sharpe does not mention the colour of the iris and the non-feathered parts in this species ; and as it is a bird varying greatly in the coloration of the plumage in its immature stages, it is desirable to ascertain how far it is also subject to variation in the colour of these parts. As bearing on this subject I may quote the following information given by Professor Schlegel in the article on this species in his work on the Muséum des Pays-Bas, Pernes, p. 8 :—"Iris couleur de perle, serres jaune d'orange, cire en dessus d'un vert foncé sale, vers le bas jaune d'orange, une raie verte depuis les narines jusqu'aux freins qui sont d'un vert bleuâtre, une tache jaune d'orange derrière les narines, paupières d'un beau vert clair." A very similar account is given by Léotaud at p. 38 of his work, to which I have already referred; he says, "Bec noir, blanchâtre à la base de la mandibule inférieure, cire, lorum et paupières d'un jaune légèrement teint de vert, pattes d'un joli jaune orangé, iris blanc avec une légère teint jaune."

The same author speaks thus of the type specimen, which I have already mentioned, of his "*Cymindis pucherani*":—"Bec noir, blanchâtre à la base de la mandibule inférieure, cire, iris et pattes jaunes."

"*Cymindis boliviensis*" of Burmeister, which, like "*C. pucherani*," is probably founded on a melanistic specimen of *Regerhinus uncinatus*, is described in the P. Z. S. for 1868, p. 633, as having "the upper mandible black, the under mandible whitish . . . . . . Iris dark brown . . . . Legs yellow."

It seems that in melanistic specimens, and also in some ordinary immature examples, the colour of the iris varies from the pearly-grey adult type. Thus a young melanistic specimen from Medellin, in the collection of Messrs. Salvin and Godman, is ticketed by the collector as having had yellow irides; and an ordinary immature example from Venezuela, in the same collection, in the second or rufous stage of plumage, had the irides light brown.

The changes of plumage incident to *R. uncinatus* before it attains its fully adult dress are very curious, and for the most part are sufficiently described in Mr. Sharpe's volume; there are, however, a few points on which I may endeavour to supplement his description by such additional information as I have been able to collect on comparing numerous examples, most of which are preserved in the British and Norwich Museums and in the collection of Messrs. Salvin and Godman, who have very kindly allowed me the use of their specimens.

In Léotaud's 'Birds of Trinidad,' p. 39, the description is given by that author of a young bird of this species, of which he says, "parties inférieures d'un blanc tout-à-fait pur;" and, although I have never seen a specimen precisely answering to this description, I think it most probable that this pure white under surface is a normal phase of the nestling plumage, appertaining to an earlier age than that of either of the two specimens described under the head of "young" by Mr. Sharpe.

The second complete stage of dress is that which Mr. Sharpe terms "mature," but which, as it seems to me, by no means merits that title. This phase of plumage is figured by Temminck in the Planches Coloriées, t. 115*; the third stage of plumage is figured in the same work on t. 104, and the fourth on t. 103. The oldest specimen described in Mr. Sharpe's volume has not yet fully acquired this fourth and final costume, of which the examples preserved in the museums in this country are by no means numerous. I only recollect two such, viz. one in the British Museum from Panama, which I believe has been acquired since the publication of Mr. Sharpe's volume, and one in the Norwich Museum from Brazil.

The passage from one stage of plumage to another is attained, as Mr. Sharpe has well pointed out, by approaches which are often irregular in their progress, and which vary much in different individuals.

Taking the second description of the young plumage given by Mr. Sharpe at p. 331 of his volume, paragraph 2 (but with the under surface entirely white, as indicated by Léotaud), as the first or nestling stage of plumage, I may mention that the passage from this to the second stage appears to commence with the following changes, viz.:—All the dark parts of the upper surface become of a blacker brown, and the rufous edgings to the feathers of the mantle gradually disappear; the dark transverse bands on the tail, which are four in number in the majority of very young birds, but occasionally five, are reduced to three, and become broader and blacker, whilst the interspaces between them change from light brown to slaty grey, which is frequently mingled with white on the upper edge of the middle interspace, and more largely so in the upper one; the base of the rectrices also becomes white in some individuals, and at the spot where each of the pale interspaces crosses the inner webs of the rectrices the colour changes from fulvous brown to white, although these changes in the tail are sometimes postponed till the assumption of the third stage of plumage has commenced; on the under wing-coverts the transverse barring begins on the lowest row of feathers, and before it spreads further, and sometimes before it even begins at all, the axillaries and tibiæ become regularly cross-barred, whilst the flanks, breast, and abdomen still show but scanty indications of the transverse bands, which are gradually developed on those parts also, and which, it may be observed, are, at their earliest appearance, much broader and more rufous in some individuals than in others, but usually appear most broadly and conspicuously on the sides of the upper breast, whence they sometimes extend on to the sides of the nuchal collar. This collar would seem to be always white in the first instance, occasionally becoming tinged with fulvous as its change to the rufous colouring of the second stage approaches, though in other cases the commencement of this change is indicated by some of the white feathers of the collar acquiring a brown spot or a brown tip of variable depth, whilst in yet other cases the change begins by the lowest row of feathers in the collar first assuming the rufous hue which subsequently pervades the whole.

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* This plate is accidentally referred to erroneously in Mr. Sharpe's volume as pl. 105.

Some individuals begin to assume the grey head and face of the third stage before they have passed into the second stage, which they thus partially overleap, and probably, in some cases, never undergo at all.

When the change takes place from the second or rufous stage to the third or earlier grey dress, the head usually becomes grey first, feathers either wholly grey or tipped with grey appear in the mantle, the nuchal collar disappears, and the rufous transverse bars, which alternate with the white ones on the under surface, assume a tinge of slaty grey, with which the rufous tints remain mingled for a while and then gradually disappear.

As the fourth stage is approached, the white transverse bars on the under surface become gradually fewer and narrower, until, by the time the final plumage has been fully attained, they have all vanished, the upper white or whitish interspace on the tail simultaneously disappearing, and the remaining one at the same time becoming considerably enlarged, so that it forms a broad white band on the centre of the tail, the rectrices then exhibiting no other pale marks, except a narrow greyish-white tip; there is also some white on the bases and tips of the upper tail-coverts, and a slight whitish marbling on the inner webs of the primaries; but, with these exceptions, the entire plumage is an unbroken slaty grey, of a darker tint, both above and below, but especially on the underparts, than the earlier grey garb which is first assumed when the bird passes into its third stage of plumage.

Professor Schlegel, in his work on the Muséum des Pays-Bas (Pernes, p. 8), referring to the specimen in the fourth stage of plumge figured in the 'Planches Col.' t. 103, speaks of this dark slaty hue ("schiste noirâtre") as a melanistic phase; but it seems to me to be more probably the normal colour of the bird in its most adult stage of plumage.

The true melanistic phase of this species appears to me to be that in which the prevailing colour is not schistaceous, but a blackish chocolate-brown; such a melanistic specimen, from Medellin, in Antioquia, is in the collection of Messrs. Salvin and Godman, and is everywhere of this dark chocolate-brown hue, with the following exceptions, viz.:—The feathers of the hinder head, nape, and breast have concealed white bases; those of the abdomen and lower flanks are narrowly tipped with rufous; on the inner webs of the quill-feathers of the wing four white bars are apparent on the under, and partially so on the upper, surface; two pairs of white spots are on the lowest row of the under wing-coverts, the upper pair forming a transverse bar; the upper tail-coverts are crossed by one white bar and the under coverts by two, the former being tipped with white, and the latter with rufous; the tail shows three pale interspaces, of which the uppermost is entirely white, and the others white on the inner webs, it also has a pale tip. An almost precisely similar

South-American specimen is preserved in the British Museum: both these birds are, from the character of the barring on the tail, evidently immature; but I saw, some years ago, in the museum attached to the Zoological Gardens at Antwerp, a specimen said to be from "La Plata or Paraguay," which, though similar in its general coloration to those just mentioned, had but one white transverse bar apparent on the tail, and was therefore an older bird, and probably adult. It is, however, possible that, at a still greater age, these chocolate-coloured melanistic specimens may assume a blackish slate-coloured hue, as has been suggested by Professor Schlegel, and as habitually happens in the melanistic males of Montagu's Harrier (*Circus cineraceus*).

A less abundant and even more remarkable species than *Regerhinus uncinatus* is its nearly allied congener, *R. megarhynchus*. Mr. Sharpe gives as the habitat of this species Peru and Bolivia; and in Peru it appears to be found to the exclusion of *R. uncinatus*, but it also occurs in other countries where *R. uncinatus* is likewise found. Thus Messrs. Salvin and Godman possess a specimen from the upper Amazons and another from Bahia, and in the Norwich Museum two examples are preserved from the Isthmus of Tehuantepec in South-Western Mexico*.

R. megarhynchus seems to differ from *R. uncinatus* only in being, on the average of specimens, a slightly larger bird, and in being constantly furnished with a conspicuously larger bill.

In illustration of the proportionate dimensions of the two species, I may mention that I have taken measurements from twenty-one examples of *R. uncinatus*, with the following results, viz.:—The wing-measurement I found to be 10·8 inches in one specimen, 10·9 in three, 11·2 in five, 11·3 in two, 11·4 in three, 11·5 in two, 11·6 in one, 11·7 in two, 10·8 in one, and 12 in on ; and the culmen, without the cere, measured along the curve of the bill, showed the following dimensions, viz., 1·3 inch in three specimens, 1·35 in five, 1·4 in six, 1·45 in four, and 1·5 in three. I have also taken the following measurements from six specimens of *R. megarhynchus*, viz.:—

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* One of these Tehuantepec specimens was collected at Santa Efigenia by Professor Sumichrast, who does not appear to have recognized the distinctness of this species from *R. uncinatus*, of which I have also seen a specimen from Tehuantepec; it is therefore probable that the Professor's note on *R. uncinatus*, as observed in that locality, which was published by Mr. Lawrence in the 'Bulletin of the U.S. National Museum,' No. 4, p. 43, may partly apply to *R. megarhynchus*.

	Wing-measurement.	Culmen, without cere.
	in.	in.
From Peru, in the British Museum..	12·4	1·95*
From Peru, in the Norwich Museum	imperfect.	1·7
From the Upper Amazons, in the collection of Messrs. Salvin & Godman	11·75	2·1
From Bahia, in the same collection..	11·5	2·1
Male, from Tehuantepec, in the Norwich Museum	12·4	1·95
Female, from Tehuantepec, in the Norwich Museum	12·6	2·0

The colour of the non-feathered parts in *R. megarhynchus* (allowing for individual variations) appears to resemble those of *R. uncinatus*, and the changes of plumage in the two species seem, so far as they are known, to be identical. The nestling plumage of *R. megarhynchus* is, I believe, the only one with which we are, as yet, unacquainted; but three young birds from Peru have been described by M. Taczanowski in the P. Z. S. for 1874, p. 551 (last paragraph), and in the P. Z. S. for 1879, p. 242 (last paragraph relating to this species), which appear to be in course of change from the nestling to the second stage of plumage, an intermediate phase of dress which occurs very frequently in *R. uncinatus*. Of the first of these specimens M. Taczanowski remarks, "le bec est noir, à naissance de la mandibule inférieure jaunâtre; l'iris brun;" and of the other two, "iris est blanc dans le premier, et blanc sale dans le dernier."

The first of M. Taczanowski's articles, above referred to, contains at p. 551, in the last paragraph but one, the description of a male and female from Peru in the second or rufous stage, but just beginning to change into the third phase of plumage; both these specimens are described as having the bill black on the upper mandible, and yellow on the lower, the irides white, slightly tinged with yellow, and the feet carrot-yellow.

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* Mr. Sharpe gives the measurement of the culmen in this specimen as 2·5 inches, having doubtless included the cere; I make it, inclusive of the cere, 2·3 inches.

The female from Tehuantepec in the Norwich Museum is also in the second stage of plumage, and is marked by the collector "Jeune femelle: iris blanc-perle, pieds jaunes;" it was shot in the month of November.

The male from the same locality, which is preserved at Norwich, and which was killed in January, has passed into the third stage of plumage, with the exception of a considerable amount of rufous colouring still mingled with the transverse grey and white bands of the under surface; and another male, in a similar state of transition, which was obtained in Peru, is recorded by M. Taczanowski in the P. Z. S. for 1879, p. 242, in the third paragraph of his note on this species.

The two specimens in the collection of Messrs. Salvin and Godman from the Upper Amazon and from Bahia, and that from Peru in the British Museum, have all nearly attained the third stage of plumage; but the last-named example would seem, from the remains of its earlier dress, which it still retains, to have passed direct from the first to the third stage, without making a transit through the second, an irregularity which also partially, if not wholly, happens, as I have already observed, in *R. uncinatus.*

The type specimen from Peru figured in the work of Castelnau and Deville, pl. 1, is represented as having completely attained the third stage of plumage; and the following note is there given of the colours of the non-feathered parts:—"l'iris de cet oiseau est blanc, le tour de l'œil bleu, la peau nue du sourcil orangée, la cire et les pattes sont d'un jaune verdâtre clair."

Another Peruvian specimen, a male, described in the second paragraph of M. Taczanowski's note in the P. Z. S. for 1879, p. 242, is shown to be somewhat older than the type, from the fact of the white bars on the under surface having become narrower. The following particulars are given respecting the iris &c. in this example :—" Iris blanc; peau nue autour des yeux bleu-verdâtre; avec une tache jaune devant l'œil; pattes orangées."

The only example of this species in the fourth, or final, dark slaty-grey dress unmingled with white on the under surface, which has come under my notice, is one which was obtained in Peru by the traveller Tschudi, and is now preserved in the Norwich Museum. The plumage of this specimen closely agrees with that of the final stage of *R. uncinatus,* except that the tail still shows some slight remains of the upper white band, and that the broad central tail-band is white only on the inner webs of the rectrices, that portion of their outer webs being a somewhat pale grey. This example is rather a small one, and most probably a male; though so old a bird, the measurement of its culmen is less than that of any other specimen that I have examined, being only 1·7 inch along the curve.

To complete the parallel between the coloration of *R. uncinatus* and *R. megarhynchus,* the melanistic phase of plumage appears to be of a similar character in both species. Such a dark-brown specimen of *R. megarhynchus* from Peru is described by M. Taczanowski in the P. Z. S. for 1874, p. 551 (third paragraph). This specimen seems to have differed but little from ordinary ones in the colour of its unfeathered parts, as to which M. Taczanowski quotes the following note from the pen of M. Jelski, who obtained it :—" La peau nue devant les yeux est d'un jaune presque orangé; la cire est jaune verdâtre tirant un peu en bleu sur les côtés, olivâtre plus foncée au dos et au-dessus des narines. La mandibule supérieure est noire, inférieure jaune. Les pattes jaunes de carotte; les ongles noirs. L'iris blanc avec une légère nuance jaunâtre."

The only remaining species of the genus *Regerhinus, R. wilsoni,* appears to be peculiar to the island of Cuba; it is one which has not come under my personal observation, but which would seem to be readily distinguishable from its two congeners by the colour of its bill.

Mr. Ridgway, in a letter which he was so good as to write to me respecting it, says, "the bill is pale greenish yellow, not black or dusky, like *R. uncinatus*."

In Cassin's original description of this species, in the 'Journal of the Academy of Natural Sciences of Philadelphia,' ser. 2, vol. i. pp. 21, 22, it is said that the bill is "yellowish white, inclining to bluish horn-colour at the base," and the iris "greenish yellow."

The following particulars relating to this subject are given by Gundlach in the 'Journal für Orn.,' vol. ii. p. 77:—"Bill light horn-colour; cere light green, with some few yellowish places; legs pale orange-yellow; eyes bluish white."

Judging from Cassin's article above referred to, and one by Ridgway at p. 159 of his 'Studies of the American Falconidæ, it would seem that the transitions of plumage in *R. wilsoni*, so far as they are known, much resemble those of the other two species of the genus *Regerhinus*.

I may now pass on to the genus *Leptodon*, which, as I have already mentioned, contains but a single species, *L. cayennensis*.

The adult plumage of this species has long been well known; it was figured by D'Aubenton in the 'Planches Enl.' pl. 473, and by Spix in the 'Av. Bras.' pl. 8; it is also sufficiently described in Mr. Sharpe's volume.

Younger specimens exhibit considerable variations of plumage, which require more detailed attention. The youngest I have examined is one from Demerara in the British Museum—a newly flown nestling, in which the quill-feathers of the wings and tail are still encased, at the base, in the sheaths indicative of that age. In this specimen the following parts are pure white, viz., the entire head (excepting a very narrow black mark immediately above the eye, which is prolonged for a short distance behind it, and excepting also the feathers in the central part of the crown, which have shaft-marks and centres of a rather dark brown), the nape, the upper interscapulars, and the entire under surface, including the under wing-coverts; the mantle and the wings are dark brown, with rufous edgings, which are broadest on the lower interscapulars, the upper tail-coverts, the secondaries, and the tertials; all the quill-feathers of the wing are crossed by blackish-brown bars, which are broadest on the primaries. The tail has two* broad blackish-brown transverse bars, with an intervening grey bar; below the lower dark bar is a narrow rufous line, succeeded by an indistinct brown one; this is followed by another rufous line, and that by the tip of the tail, which is whitish.

There appear to be two distinct types of coloration amongst the immature birds of this species—one, of which the nestling above described may serve as an example, in which a pure white preponderates on the head, neck, and underparts, and which is the more frequent of the two; the other, a much darker type, which is not so common, and to which I propose to refer more fully after I have noticed some additional specimens of young birds in the white-breasted plumage. Mr. Sharpe treats these two phases of coloration as consecutive, supposing the darker to be the younger of the two; but this is, I think, disproved by the existence both of the white-breasted nestling above described, and of specimens in course of change from that stage and also from the dark phase of plumage into the adult dress.

The dark plumage is, I believe, a peculiarity incident to some young birds of this species and not to others, the case being almost a parallel one to that of the dark and light phases of plumage amongst the immature examples of *Pernis apivorus* and *P. ptilorhynchus*; and in this instance, as in that, though I think less frequently, young birds of an intermediate complexion, as regards coloration, also occasionally occur.

It may be convenient to attach a number to the several specimens to which I am about to refer; and commencing by calling the Demerara nestling, already described, "No. 1," I would now refer to No. 2 on my list, an example from Ecuador, which has been kindly lent to me by Messrs. Salvin and Godman; it is a slightly older bird than No. 1, but closely resembles it, with the following exceptions:—the patch of dark colouring on the crown of the head is larger and more tinged with black, but the feathers on the outer circumference of this patch or cap are partially white, and all the remainder are narrowly tipped with whitish brown; the white feathers on the lowest row of the nuchal collar are mingled with brown, and the rufous edgings of the interscapulars are narrower than in the nestling; the broad dark transverse bands on the tail are three in number, with two lighter brown interspaces, and, lastly, a few of the tibial feathers show a very narrow dark shaft-mark.

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* The small number of these bars is probably due to the tail not being quite fully grown.

No. 3 is another Ecuador specimen in the collection of Messrs. Salvin and Godman, very similar to No. 2, but with fewer of the dark feathers on the crown showing the whitish edge, and with no dark shaft-marks on the tibial feathers. In this example the interscapulars have conspicuous rufous edges, as in No. 1, and the tail is crossed by four dark bars, of which the uppermost is concealed by the tail-coverts, and by three pale interspaces in addition to the pale tip.

In the adult birds of this species the greyish white of the upper breast is interrupted, for about an inch on either side, by a tuft of slaty-black feathers springing from below the wing at the shoulder-joint; in specimen No. 3 one feather of these tufts is appearing, on the left side only, amongst the pure white breast-plumage; but this feather is of a dark brown hue, instead of being slaty black, as in the adult.

No. 4 is from the same locality, and is preserved in the same collection as No. 3, to which it is very similar, but is in a slightly more advanced stage of plumage; the pale tips to the blackish-brown feathers on the crown of the head are for the most part gone, and the dark tufts are beginning to appear on both sides of the upper breast. This specimen much resembles Temminck's figure in the 'Planches Col.' pl. 204*; but the latter shows very narrow dark shaft-marks on the lower breast and thighs, which in specimen No. 4 are not present.

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* The name of "*Falco palliatus* ♀" is erroneously attached to this plate.

A specimen from Panama, which was, some time since, in the possession of M. Boucard, and which I may call No. 5, much resembles No. 3, but has a few rather broad shaft-marks just above the centre of the crop.

No. 6, an immature bird from Costa Rica, in the Norwich Museum, resembles No. 2 in the whitish edgings to the dark feathers of the crown; but the patch of dark colour on that part of the head is less extended in this specimen than in any other that I have examined, except No. 1; it likewise exhibits a considerable admixture of wholly or partially white feathers amongst the brown ones of the lesser and median wing-coverts, a peculiarity which I have not observed in any other example that has come under my notice; and it also has an unusual proportion of white mingled with the brown of the upper tail-coverts. This specimen has, to a slight extent, commenced the assumption of the adult dress, simultaneously with which the rufous edgings to the feathers of the upper surface have almost entirely disappeared; the patches of dark-brown feathers on each side of the upper breast are present, as in No. 3, and three adult feathers of a dark greenish* slate-colour (one a secondary wing-feather, and the other two scapulars) have already made their appearance.

No. 7 is another Ecuador specimen belonging to Messrs. Salvin and Godman, and resembles No. 4, but is considerably more advanced, many grey feathers being mingled with the immature white plumage of the forehead, ear-coverts, nuchal collar, throat, and upper breast, and some adult feathers of the dark greenish-slaty hue also appearing amongst the upper interscapulars. In this example some of the tibial and lower flank-feathers show a narrow dark shaft-mark, and on two of the former a decided blackish-brown spot is visible.

A specimen in an almost precisely similar state of change, but with the addition of one adult tertial, is preserved in the British Museum; this example, which I may call No. 8, is merely labelled "South America."

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* This slight tinge of dark green on the feathers of the mantle is more decidedly present in some adults than in others, and is probably most visible when the plumage has been recently renewed.

No. 9, from Costa Rica, is also in the British Museum, and appears to be a bird of about the same age as No. 4, with which it agrees in general appearance; but in some respects it approaches the darker type of immature plumage to which I have already adverted. Thus, the dark plumage on the crown of the head is more extended, both towards the forehead and the nape, and especially in the latter direction, where it reduces the breadth of the white nuchal collar to about half an inch instead of two and a half inches, as it is in No. 4; the blackish mark behind the eye is also broader than in the specimens previously described, and extends backwards till it completely joins the hinder part of the dark cap or crown-patch, which in the other specimens it either does not join at all, or at most very imperfectly. The white ear-coverts in this example have dark shaft-marks. The mantle differs from the other specimens which I have described in having the interscapulars of a somewhat darker hue, although no adult feathers seem to have yet appeared; black shaft-marks are also apparent on a few feathers of the throat, and the tibial feathers have elongated blackish-brown centres; on some of the white feathers of the breast a few very narrow and faintly marked brownish transverse lines are just visible.

The dark phase of plumage, to which I have already alluded, is also evidently an immature one, as all the examples of it that I have examined retain more or less of the rufous edgings to the feathers of the mantle, though I have seen none in which these are retained to so great an extent as in No. 1 and in some other very young white-breasted examples.

In this dark phase the nuchal collar is usually entirely absent, whilst in others it exists, but is rufous instead of being white*; on the entire upper surface and sides of the head the plumage is blackish brown; the same hue pervades the interscapular feathers, and, when there is no rufous collar, the sides and nape of the neck also; the remainder of the upper surface, including the tail, resembles the corresponding parts in the white-breasted young birds, except that where the latter are partially white on the inner webs of the quill-feathers of the wing and on the upper tail-coverts, the dark-plumaged birds show a pale ferruginous tint replacing the white on those portions of the plumage.

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* I have never personally examined one of these rufous-collared specimens, but such a one is figured by Temminck in the 'Pl. Col.' pl. 270. Professor Schlegel, also, thus refers to examples of this description in his

On the under surface these dark-coloured birds seem to be subject to considerable individual variation.

In a bird of this complexion from Costa Rica, which is in the possession of Messrs. Salvin and Godman, and which I may call No. 10, the dark shaft-marks are broad on the centre and outer sides of the throat, and narrow in the intermediate space; broader, again, across the crop, on the flanks, and on the thighs, as well as on the axillaries and under wing-coverts (where, however, they are paler in colour), and narrow on all the remainder of the underparts, except on the under tail-coverts, from which they are altogether absent. The Norwich Museum possesses a very similar example from Trinidad; and at pp. 35 and 36 of Léotaud's birds of that island, two specimens are described which seem to have been of a character somewhat intermediate between the lighter and darker phases of plumage, and to have been also in course of change from immature to adult dress.

I propose now to refer to the colour of the underparts in two other specimens belonging to Messrs. Salvin and Godman, of a similar character to No. 10, but darker on that portion of their plumage; these specimens I may enumerate as Nos. 11 and 12.

In No. 11, which is from the southern slope of the volcano of Chiriqui, the shaft-marks are very much as in No. 10 on

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account of this species in the 'Muséum des Pays-Bas,' vol. i. Pernes, p. 9:—"D'autres individus sont bruns en dessus, blanchâtres en dessous, avec des taches longitudinales brunes plus ou moins étendues, cou avec un collier roux."

some of the tibial feathers, also on the wing-coverts, axillaries, flanks, and abdomen; on some feathers of the under tail-coverts faintly rufescent broadened shaft-marks are perceptible; on all the remainder of the under surface, consisting of the entire breast and throat, the shaft-mark on each feather is expanded into a broad blackish-brown patch occupying the whole of the feather, except a narrow edge and the base, which are white, but not conspicuously so.

In No. 12, a female, also from Chiriqui, broadened shaft-marks, like those on the breast of No. 11, extend over the entire under surface; but on the under tail-coverts they are of a decided rufous brown, instead of being blackish brown, as elsewhere. Except for the lack of the rufous collar, this specimen would closely resemble Temminck's plate (Pl. Col. 270). An example from Honduras, very similar to No. 12, is preserved in the British Museum.

I may also here mention two specimens in the collection of Messrs. Salvin and Godman, which I may call Nos. 13 and 14, and which have attained the adult dress, with the exception of some slight remains of earlier plumage, that seem to be relics of the darker phase of immature colouring. No. 13 is a male from Venezuela, which retains one dark feather on the breast, others, partially dark, on the sides, and several brown secondaries in the wings; while in No. 14, from Guatemala, most of the tibial feathers are of a blackish slate-colour, mingled with pale grey, and a few feathers of the flanks are similarly tinged, though to a less extent.

Mr. Sharpe does not mention the colour of the iris in this species, which, according to other authorities, is liable to considerable variation.

The nearly adult male frum Venezuela, No. 13 in the above list, is marked by the collector as having the iris yellow; but an adult male from the same locality in the Norwich Museum is similarly marked as having the iris brown; it is also noted by the collector as light brown in a white-breasted immature male in the same collection, the locality of which is unknown.

An adult female from Yucatan, killed on 20th February, and recently in the possession of M. Boucard, was noted by the collector as having the iris dark grey.

Léotaud, in his article on this species, to which I have already referred, says, "Cire, iris et pattes d'un jaune clair; bec noir."

In Professor Sumichrast's notes on the 'Birds of South-Western Mexico,' published by Mr. Lawrence, he says of this species, at p. 42, "iris brown; upper mandible black, the lower, cere, lores, eyelids, and feet bluish ash, the cere spotted with black."

Professor Schlegel, in his article on this species, which I have already quoted, says, "Serres, iris de l'œil, angle de la bouche et moitié postérieure de la mandibule inférieure d'un jaune orange; freins et paupière supérieure d'un jaune clair."

Judging from the skins which I have examined, I believe that the base of the lower mandible is yellow in the young birds only, and not in the adult.

[To be continued.]

XXXI.—*Ornithological Letters from the Pacific.* No. III.*

By Otto Finsch, Ph.D., H.M.B.O.U., &c.

Taluit (Bonham), Marshall Islands,
November 15, 1879.

Since I wrote you my last letter (dated September 20th) I have made a trip in a small schooner of 80 tons to the eastern (Ratak) chain of this group of islands, without doing much as regards ornithology. Sea-birds were generally as rare as they were on the voyage down the Pacific from Honolulu. In fact, we passed days when not one single bird was seen, and Tropic-birds (*Phaeton flavirostris* and *P. æthereus*) and a single species of Shearwater were almost the only ornithological appearances at all. The latter was dark brown all over; but the birds were always too far out to recognize the species. Once only I noticed a *Procellaria*, dark, with a white rump. Frigate-birds (*Tachypetes*) I only observed twice, high in the air, but easily recognizable by their forked tails. In flight this bird much resembles an Eagle, and is by far the finest flier of the ocean. Frigate-birds, Tropic-birds, and Boobies (*Sula*), I was assured, breed in great numbers on Bigar, an uninhabited and nearly barren island, the northernmost of the Ratak chain, and also on Gasparrico (S. Bartolomeo), rather more to the north-east and of a similar character. From these islands, especially the former, the natives get the feathers of *Tachypetes*, which are used for ornaments for their big canoes. As one sails along the coasts a little more ornithological life is to be observed, consisting of more or less numerous flocks of Noddies (*Anous*), mixed with Terns (*Sterna melanauchen* and *S. bergii*) and a few examples of *Gygis alba*. These species are also the only birds seen hovering over the lagoons. Sometimes the splendid light-blue water of the latter reflects in a wonderful way on the beautiful white of these birds, and it was striking for a moment, even for me, to see a delicate blue *Sterna bergii* skimming over the waves thus illuminated. The last-named species I observed first in the middle of October on the lagoons, but only single specimens or pairs. Then they were moulting, and some examples had lost nearly all their primaries; otherwise they were in the so-called winter dress, with a black crescent on the occiput. In the beginning of January they were in full nuptial dress, the whole cap being black; and at this time I also got fresh-laid eggs from this lagoon, but was not able myself to find the breeding-grounds. This would seem, on taking up the map, to be a very easy task, but is, in fact, a very difficult one, and might take several days. It must be remembered that the atoll of this island (Taluit) consists of fifty-eight different islands, which encircle a lagoon of about twenty-eight sea-miles in length and seventeen in diameter, and that it is not always easy to land just where one pleases.

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* For No. II. see 'Ibis,' 1880, p. 218.

The avifauna of the islands themselves is quite as poor as that of the lagoons, and, in fact, every island shows just the same kind of birds—i. e. *Strepsilas interpres*, *Charadrius fulvus*, *Actitis incana*, and *Ardea sacra*. Although the former two species winter here, they are not to be seen in large flocks, and from about ten to fourteen *Strepsilas* and about four *Charadrius fulvus* were the highest numbers I ever observed. Specimens of both species shot in September were in moult, and still showed signs of the summer plumage; those collected at the end of October and in November wore the full winter dress. *Actitis incana* chiefly frequents the seashore, and rests on the isolated coral blocks, or is seen flying with great rapidity over the heavy breakers; but this bird, which is generally seen in pairs, roosts on the dead branches of trees. In habits it nearly resembles our *Actitis,* but does not flirt its tail in the same way.

At the end of October I had brought to me a specimen of *Calidris arenaria* in full winter dress, but I never observed this species myself. On the other hand, I met at the same time with a bird which seems to be *Charadrius hiaticula,* although I could not state this as certain. The specimen of *Numenius femoralis* which I mentioned in my last letter remains, to my regret, the sole one, although I offered large prices to the natives for another. The same thing occurred in regard to *Carpophaga oceanica.* This species, called a "Mule" by the natives, seems to be more plentiful on the Arno atoll (Daniel and Pedder), as there are bread-fruit trees there in considerable numbers; but all my efforts to obtain it were unsuccessful. On Arno I myself observed *Numenius femoralis.*

On the 21st of October a native brought me an example of *Eudynamis taitiensis* alive, a most wild bird, which bit and cried fearfully. As it refused all sorts of food, I had to kill it, in order to save the skin. The stomach contained wing-coverts of beetles, remains of caterpillars, and a few small seeds. In life—bill dark horn-brown, lower mandible and edging of the upper brownish grey; eye-ring obsolete greyish green; legs dirty green, claws black, soles pale yellow; iris dark brown, with a brownish-yellow outer rim. The species is called "Urit" by the natives, but none of them could tell me during what season the bird lives here. On the 26th of October I got a "very rare bird," which King Kabua, followed by his family, was bearing himself under his arm—not as a present, for these people never give any presents, even a single feather. This bird, never seen before by the natives, was *Anas penelope,* in full winter dress! The specimen must have been a castaway, for it was so exhausted that the king's boy had taken it by hand; it was merely a skeleton covered by feathers.

During my visit to Arno, in the first week of November, I had the pleasure of seeing, for the first time, a large breeding-colony of Noddies. We crossed the lagoon in order to land on the opposite shore on an island called "Dagelab" by the natives, which bears an unusual vegetation. The big ganzal trees, about 80 feet high, form a small wood, and give, at a distance, the appearance of a "high island," a name which, in fact, was applied by Capt. Hudson in his map to the Arno atoll. Long before we reached the shore we saw hundreds of black birds in the air above the tops of the trees. They were *Anous melanogenys,* and another larger species, the different cry of which we noticed long before we procured the bird itself, in much smaller numbers. It proved to be *Anous stolidus.* The nests of the latter were placed in the clusters of ferns parasitic on the lower branches of *Pandanus*-trees, and I got some of the eggs through the natives. Each nest, placed on the clump of leaves, contained only one egg, some freshly laid, others in all stages of incubation up to the young bird. Notwithstanding the full breeding-season, the birds were still moulting. The nests of *Anous melanogenys* were placed in the forked branches of trees, sometimes very far from the stem, and consisting only of a few twigs; they were in colonies; many single ganzal trees bore more than twenty nests. I did not get the eggs, as the natives were too lazy to climb the trees, saying they were unable to do so.

The whole number of birds as yet observed and obtained by me in the Marshall group is twenty, namely:—

Eudynamis taitiensis.
Carpophaga oceanica.
Strepsilas interpres.
Charadrius fulvus.
? —— hiaticula.
Actitis incana.
Calidris arenaria.
Numenius femoralis.
Ardea sacra.
Sterna bergii.
—— melanauchen.
Anous melanogenys.
—— stolidus.
Gygis alba.

Anas penelope.
Puffinus, sp. inc.
Procellaria, sp. inc.
Phaeton æthereus.
—— flavirostris.
Tachypetes aquilus.

So far as I know, no bird has been previously registered from the Marshall group. There are no small land-birds here, and, what strikes me as most singular, no Kingfisher, which is the more to be wondered at, as the islands abound with lizards.

XXXII.—*Descriptions of four new Species of East-African Birds.* By Captain G. E. Shelley.

(Plates VII. & VIII.)

1. **Cisticola rhodoptera**, sp. n.

Upper half of the head dark brown, with the lores, cheeks, and ear-coverts of a slightly more ashy shade; back brown, with a slight rufous shade on the middle, a more ashy shade towards the scapulars, and an olive shade on the rump and upper tail-coverts; wings dark brown, with all the coverts, and with broad margins to the quills, bright chestnut; the secondaries with narrow pale ends; tail-feathers (much worn) brown, with white ends, and with a broad subterminal blackish-brown bar; chin, throat, and centre of the chest white, shading into pale ochreous brown on the sides of the crop, flanks, thighs, and under tail-coverts; under surface of the wings dark brown, with the inner margins of the quills and the centre portion of the coverts pale ochreous brown, the remainder of the under wing-coverts white; bill pale brown, shading into dark brown towards the base of the upper and the edges of both mandibles; tarsi and feet flesh-colour. Total length 4·8 inches, culmen 0·6, wing 2·15, tail 2·4, tarsus 0·95.

A single specimen of this bird has been sent to me by Dr. Kirk from the Usambara hills.

The present species is closely allied to *C. erythroptera* (Jard.). Compared with a specimen of that bird obtained by myself at Accra, on the Gold Coast (labelled " ♀, 15th of

February, 1872"), the present East-African species has the bill slightly stronger, and pale brown instead of black; the upper half of the head and the nape is dark brown, and the back is also darker and decidedly less rufous. The underparts, the wings, and the tail agree well in the two species, and there is no important difference in their measurements.

2. PHYLLOSTREPHUS SHARPEI, sp. n.

Entire upper parts rufous-shaded brown, the rufous shade rather more intense on the upper tail-coverts; wings dark brown, with all the coverts and the secondaries shading into rufous-brown towards their margins, the primaries edged with paler and less rufous-brown; tail-feathers with almost obsolete pale ends, excepting the outer feather on each side, which has its ends and a narrow margin to the inner web buff. Underparts, and a partially defined eyebrow, creamy white, shaded on the sides of the crop with rufous-brown, and on the thighs, flanks, and under tail-coverts with pale brown; under surface of the wings dark brown, with broad inner margins to the quills and to all the coverts rufous-buff; bill dark brown, fading into white along the keel and towards the base of the lower mandible; tarsi and feet, apparently, leaden brown. Total length 7·4 inches, culmen 0·65, wing 3, tail 3·4, tarsus 0·85.

The type was obtained by Dr. Kirk at Dar-es-Salaam.

This is the third species known of the genus *Phyllostrephus*, and may at once be recognized from its congeners by the strong rufous shade of the plumage.

I have named this bird in honour of my friend Mr. R. Bowdler Sharpe, who is at present engaged in writing a monograph of the Timeline birds.

3. BARBATULA OLIVACEA, sp. n. (Plate VII.)

General plumage olive-green; forehead and crown dusky black, shading into olive-green on the occiput and nape; quills dark brown, with broad olive edges to their outer webs, increasing in extent from the third primary; the outer two primaries not edged with olive; both webs of the inner secondaries olive-green; a part of the inner margins of the quills buff; upper surface of the tail olive-green, with dark-brown shafts; under surface of the tail ashy olive, with pale brown shafts; entire under surface of the body olive, paler than the back; sides of the head and the upper throat of a dusky shade, becoming almost black on the chin and in front of the eyes; under surface of the wings dark brown, with the coverts and portion of the inner webs of the quills buff; bill and claws black; legs brownish black. Total length 6·6 inches, culmen 0·7, wing 3·35, tail 2·1, tarsus 0·9.

The type was shot at Rabbai, near Mombas, by the Rev. Thomas Wakefield.

4. AMYDRUS WALLERI, sp. n. (Plate VIII.)

Adult male. Black; back, upper tail-coverts, scapulars, least and median series of wing-coverts, chest, and abdomen strongly shaded with metallic violet; remainder of the plumage, with the exception of the primaries, strongly shaded with deep metallic green; crown partially glossed with violet; the basal two thirds of the primaries chestnut-brown, with the exception of the first primary and the outer web of the second one; under wing-coverts dusky black, margined with metallic violet; bill and legs black. Total length 9 inches, culmen 0·75, wing 5, tail 3·8, tarsus 1.

Adult female. Only differs from the male in the head and throat being paler and duller, the chin, throat, and sides of the head inclining to ashy grey. Total length 9·2 inches, culmen 0·8, wing 4·9, tail 3·8, tarsus 1.

A collection sent to me by Dr. Kirk from the Usambara mountains contained three specimens of this new species, a male and two females. Compared with the well-known *A. morio* (Linn.) of South Africa, the present species is much smaller, being only about two thirds of the size; the bill is proportionately shorter and stouter, and the head, neck, and wings are greener. The sexes differ in a similar manner.

I have named this species after my friend Mr. Gerald

Waller, whose knowledge of the Zanzibar coast, and whose assistance to me in obtaining collections from that interesting province, prompt me to make this slight acknowledgement of his services.

XXXIII.—*Notes on the Avifauna of New Caledonia and the Loyalty Islands.* By E. L. Layard, C.M.G. &c.

A French gentleman, who is collecting specimens, sent us, a day or two back, a fine adult example of *Accipiter haplochrous* ♂. It had been forwarded to him from a distance, together with a couple of "Flying-Foxes;" and our weather being hot and thundery, their perfume may be imagined! My friend felt he *could not* finish the lot in time, so fortunately elected to keep the Bats and send us the bird! Another journey through the sun, in the hands of a canaque, did not improve matters; but as this species is very rare, and a male had only once before reached me, we set to work on it with a piece of rag saturated with carbolic acid pinned under our nose, and a solution of the same constantly applied to the specimen while being dissected!

Measurements, taken *in the flesh*, of both sexes of the bird, lead us to suppose that the specimen on which the species was founded by Mr. Sclater (Ibis, 1859, p. 275, pl. viii.) may have been a male, and not a female, as labelled by Mr. John Macgillivray.

We subjoin the measurements of two of each sex, together with those given by Mr. Sclater of his specimen:—

	Length.	Wing.	Tail.	Tarse.	Bill.	Colour of Eye.
	in. lin.	in. lin.	in. lin.	in. lin.	in. lin.	
Two ♀....	15 0	9 6	7 6	2 10	1 0	Cadmium-yellow.
♂ No. 1 ..	13 0	9 0	6 6	2 3	10	Crimson.
♂ No. 2 ..	14 6	9 0	6 6	2 3	10	do.
Sclater's supposed ♀	14·5	9·3	6·6	2·6		

It is curious that the colour of the eyes in these two males should be crimson, while those of the females should be bright cadmium-yellow.

The bird last sent was killed while harrying a chicken; but a previous specimen had fed on mice, the skins of which were found in pellets in its stomach.

We lately (November 15th), while in some forest at Yahoué, came across the White-bellied Wood-Swift (*Collocalia uropygialis*, G. R. Gray) breeding in a small cavern in some rocks at the foot of a huge banian-tree. The nests, eleven in number, were placed almost all together in two rows, one partly over the other, like scales on a fish. They were composed almost entirely of green moss, without any lining, and stuck to the face of the sloping rock by the glutinous saliva of the bird. In shape they are flattened ovals; greatest length inside 2 inches, depth about 2½. The flat side, of course, was against the rock. In some were young birds, just hatched, and in others eggs in all stages of incubation, some being quite fresh. Eggs, two in each nest, pure white, elongated, and abruptly truncated at each end; axis 8‴, diam. 5‴.

A gentleman, who has a slight knowledge of birds, while lately inspecting the collection brought by L. L. from Blanche Bay &c., pitched upon specimens of *Dendrochelidon mystaceus*, and informed us he had seen Swallows of that size, but without the elongated tail, in the north of this island, at Pacu. On questioning him, we have come to the conclusion that the birds seen, from their colour, shape, and size, must have been *Chætura caudacuta*, the large Australian Spiny-tailed Swift; nor do we see why a bird of such enormous power of wing should not, in its migration, occasionally reach these shores.

The acquisition of a series of our new Blackbird (*Turdus mareensis*) from the island of Maré, one of the Loyalty group, enables us to describe the female of this interesting species.

One in breeding-plumage is nearly as black on the upper surface as the male; but below, from the chin to the vent, each feather is sooty black, rather broadly bordered all round with brown, with a greenish tint. This, of course, gives it a "scaled" appearance. The white vent is tinted with brown, more or less, and so also are the peculiar markings of the under tail-coverts. Some fine males also enable us to characterize these more particularly. Each feather has a white shaft, leading into a largish white tear-shaped spot, which occupies the entire point of the plume. These under tail-coverts and the white vent readily distinguish the species from any other of the genus we have from these parts.

In the collection containing these birds were specimens of our new *Erythrura cyaneifrons*, and also of *Aplonis atronitens*, G. R. Gray, showing that these two species extend from Lifu (whence first described) to, at least, one other island of the group.

On another expedition, a few days earlier, a fine example of the rare *Clytorhynchus pachycephaloides*, D. G. Elliot, was obtained in the locality where we previously found it. Unfortunately, "Long Tom" behaved badly, and "balled;" and when the native with us picked up our prize he exclaimed, "Head belong-a-him-fellow; he no stop!" We had smashed it to fragments, though a long shot through bushes; perhaps a "splinter" had done the mischief.

We should here remark that L. L. procured this obscure dusky-coloured bird during a short stay he made on Vate (Sandwich Island), New Hebrides, in May last.

Our French friend likewise confirmed a report that we (E. L. L.) heard at Houailou, that the Crows of the west coast were a far larger species than the little *Physocorax moneduloides*, Less., of the eastern coast. He says they do not come down within sixty or eighty miles of Noumea, but that where found they are not uncommon. He also feelingly confirmed the reports of the "body-snatching" propensities of the smaller birds, which he knew nothing of till he had eaten some fifteen or twenty! He was then informed by the natives that these birds always picked the bones of their dead, which were exposed on trees for the purpose. This was too much for even our friend's love of "gibier," Frenchman though he be, and *he has given up eating Crows*!

On what authority does Dr. Finsch conclude that a specimen of *Platycercus ulieteanus* (Gm.) in the British Museum is from Tanna, New Hebrides? (*cf.* Ibis, 1873, p. 30). In Gray's 'Birds of Tropical Islands,' the habitat of Tanna is marked with doubt (?). We have made many inquiries, but cannot learn that such a bird exists on the island, nor do we deem it at all likely that the Society Islands and Tanna should possess an identical species.

Again, *Trichoglossus pygmæus* is said to have come from Otaheite (*cf.* Ibis, 1873, p. 32); but Latham says "it inhabits several of the islands in the South Seas." The figure of this bird given in 'The Ibis' (*loc. cit.*) will do admirably for the female of *T. palmarum*, Forst., which L. L. lately procured on Vate, and believes he saw on Api and Santo (*cf.* Ibis, 1878, p. 274) on a previous visit. Without actual comparison of specimens we can do no more than express our belief in the identity of the species, and that Otaheite has been given as an erroneous habitat. The colours of the bill and legs given in the figure undoubtedly differ from those of our more recently killed birds; but that may be simply the effect of age and exposure. In our specimens even they are rapidly changing; but L. L.'s notes give them "coral-red;" iris "light orange," not brown, as in the plate. There is also the slightest tinge of crimson on the feathers at the base of the lower mandible; but these may be easily overlooked, and probably, from what we know of allied forms, do not exist in young females, or in males previous to their first moult.

We have been fortunate enough to secure a magnificent specimen of *Drepanoptila holosericea* (Temm.) with its gizzard undistended with food; and we can now confidently state that it is in perfect accord with the figure given by Prof. Garrod in the 'Proceedings of the Zoological Society' for 1874, p. 257, of the gizzard of *Ptilopus*, thus setting at rest the question of its affinity with that genus.

XXXIV.—*Remarks on the present State of the Systema Avium.* By P. L. Sclater.

It will be generally allowed, I believe, by all ornithologists that the Systema Avium is not at present in a very satisfactory state. The Cuvierian arrangement and its modifications have been broken down by the criticisms of modern inquirers; but no other system has arisen to take its place, or, at all events, has secured general adoption. The subject being, as will be universally allowed, one of the utmost importance, I have thought it possible that my brother workers might like to hear what my views are upon the question.

Up to 1873, as regards general arrangements, I had acquiesced, more or less, in the modified Cuvierian system employed by G. R. Gray in his well-known works. I had, however, long before quite come to the conclusion that the true Passeres were the most highly developed order of birds, and should be placed at the head of the series, and that the Fissirostres and Scansores, which in Gray's system merely figure as subdivisions of the Passeres, should stand as separate orders. I had also made up my mind that, as regards the subdivisions of the Passeres, Müller's discoveries as to the form of the larynx and the arrangement of its muscles could not be passed over. Accordingly, in the catalogue of my collection of American birds, published in 1862, I arranged the three first orders of birds (as I then considered them), to which my collection was restricted, as follows:—

Ordo Passeres.

Sectio *Oscines.*

i. Turdidæ.
ii. Cinclidæ.
iii. Sylviidæ.
iv. Paridæ.
v. Certhiidæ.
vi. Troglodytidæ.
vii. Motacillidæ.
viii. Mniotiltidæ.
ix. Hirundinidæ.
x. Vireonidæ.
xi. Laniidæ.
xii. Ampelidæ.
xiii. Cœrebidæ.
xiv. Tanagridæ.
xv. Fringillidæ.
xvi. Alaudidæ.
xvii. Icteridæ.
xviii. Corvidæ.

Sectio *Tracheophonæ*.

xix. Dendrocolaptidæ.
xx. Pteroptochidæ.
xxi. Formicariidæ.
xxii. Tyrannidæ.
xxiii. Cotingidæ.
xxiv. Phytotomidæ.

Ordo Fissirostres.

i. Momotidæ.
ii. Todidæ.
iii. Alcedinidæ.
iv. Galbulidæ.
v. Bucconidæ.
vi. Trogonidæ.
vii. Caprimulgidæ.
viii. Cypselidæ.
ix. Trochilidæ.

Ordo Scansores.

i. Cuculidæ.
ii. Rhamphastidæ.
iii. Capitonidæ.
iv. Picidæ.
v. Psittacidæ.

This arrangement of the three first orders of birds I employed until 1872, allowing the Accipitres to succeed, and the remaining orders to follow, according to the Grayian system. But in 1872 it was necessary to decide what arrangement should be employed for the remaining orders in the list of Neotropical birds ('Nomenclator Avium Neotropicalium') which I was then preparing together with Mr. Salvin*. In the mean time the famous investigations of Prof. Huxley on the bones of the palate in the class of birds had taken place, and an entirely new arrangement of the class, consequent upon these investigations, had been promulgated. Having long entertained serious doubts as to the validity of the Grayian system, especially as to the groups associated together in the orders Grallæ and Anseres, I was pleased to find an alternative which had the sanction of high authority. Prof. Huxley had commenced his "Systema"† with the lowest and most reptilian birds, and had ended it with the highest and most specialized. But it seemed to me that, by exactly reversing this arrangement, I should obtain a scheme which would not very far deviate from that which I had already employed as to the first three orders, and would offer many improvements on the Grayian system in the remainder. In the introduction to the 'Nomenclator,' accordingly, I gave the subjoined scheme as that which I proposed to employ for the general arrangement of living birds, dividing them into 21 orders, as follows:—

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* [The arrangement adopted in the 'Nomenclator' is entirely Mr. Sclater's. I was forced to desert my colleague when I visited Central America in 1873–4, a portion only of this work having been then printed and the Introduction unwritten.—O. S.]

† P. Z. S. 1867, p. 456.

Subordo I. Aves Carinatæ.

Series *Ægithognathina.*	Series *Desmognathina.*	Series *Schizognathina.*	Series *Dromæognathina.*
1. Passeres.	4. Coccyges.	11. Columbæ.	19. Crypturi.
2. Cypseli.	5. Psittaci.	12. Gallinæ.	
3. Pici.	6. Striges.	13. Opisthocomi.	
	7. Accipitres.	14. Grues.	
	8. Steganopodes.	15. Limicolæ.	
	9. Herodiones.	16. Gaviæ.	
	10. Anseres.	17. Pygopodes.	
		18. Impennes.	

Subordo II. Aves Ratitæ.
20. Apteryges.
21. Struthiones.

I will now proceed to make a few remarks upon each of these orders, and to state where I think there are improvements still to be effected in the arrangement. It must, however, be always recollected that, although a linear system is an absolute necessity for practical use, it can never be a perfectly natural one. It will always be found, in any linear arrangement, that certain groups are nearly equally related to other groups at quite different parts of the series, and that it is a question of no little difficulty with which of these to place them; but we must, nevertheless, do our best to make the most natural linear arrangement that is possible for practical use.

1. PASSERES.

After eliminating the Scansores and Fissirostres of the Cuvierian system, the remainder of the Insessores constitute a tolerably homogeneous group, which, it is now generally acknowledged, form one of the main divisions of the Class of Birds. They are the Passerinæ of Nitzsch[*], the Oscines of Sundevall's 'Tentamen'*, the Coracomorphæ of Huxley; but I see no reason why we should not retain for them the old Linnean name of Passeres.

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[*] 'Obs. de Avium arteria carotide communi.' Halæ, 1829.

There are still several forms regarding which their collocation in the Passeres thus understood is a matter of dispute. These are mainly as follows:—

1. *Upupa*. Sundevall places *Upupa* near the Larks, at the commencement of his second series of Oscines (the "Oscines scutelliplantares"), with which it agrees in the structure of the plantar scutes ('Tentamen,' p. 55). Nitzsch associates *Upupa* with *Buceros* and *Alcedo* in his family Lipoglossæ of the Picariæ. There can be no longer any question, I think, that the latter view is correct, and that *Upupa* is more nearly allied to the Bucerotidæ than to any other group. Some of the thin-billed Bucerotidæ of the genus *Toccus* even resemble *Upupa* in habit and external appearance. The palate of *Upupa* at once shows that it is no Passerine bird†. Next to the Upupidæ must come also the small African group Irrisoridæ, as was first suggested by Strickland, and has been amply shown by Dr. Murie in his excellent dissertation on the Upupidæ and their relationships‡.

2. *Eurylæmus*. The Eurylæmidæ were placed by Gray and most of the older authors near the Kingfishers and Motmots, *i. e.* outside the Passeres, as now restricted. Mr. Wallace, I believe, first started the idea that they are the representatives of the Cotingidæ in the Old World, and has thus arranged them in his 'Geographical Distribution'§. There is now no doubt that the Eurylæmidæ are truly Passerine, as I pointed out in this Journal in 1872, from an examination of the sternum||, and as Mr. Garrod subsequently confirmed from the form of the palate¶, although they are singularly divergent from all other known Passeres in having the *flexor*

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* In Sundevall's former arrangement (Orn. Syst. 1836) they were denominated *Volucres*, and divided into two main groups, *Passeres* and *Oscines*.

† *Cf.* Huxley, P. Z. S. 1867, p. 447.

‡ Ibis, 1873, p. 181.

§ Vol. ii. p. 294.

|| Ibis, 1872, p. 177.

¶ P. Z. S. 1877, p. 449.

hallucis longus connected by a vinculum with the *flexor digitorum profundus.*

3. *Todus,* associated by Cabanis with *Todirostrum* in the Tyrannidæ, and by Sundevall with the Piprinæ, should be correctly placed, as I have already shown*, from its sternal characters, next to the Momotidæ, and has nothing to do with the true Passeres. The pterylosis confirms this view†.

4. *Euryceros* was formerly referred by Gray to the Bucerotidæ, but at my suggestion, I believe, was removed in his last work ('Hand-list,' ii. p. 21) to a much more natural position among the Sturnidæ. A glance at its feet is sufficient to show that it is a laminiplantar Oscine. Mr. Sharpe has recently included *Euryceros* in the heterogeneous assemblage which he has united under the title of Prionopidæ. I fail to see that it has any connexion at all with the other genera placed in that group.

5. *Falculia,* also a laminiplantar Oscine, has been hitherto usually associated with the Hoopoes, to which it has no sort of relationship (*cf.* Murie, Ibis, 1873, p. 201). It is certainly either a Sturnine or Corvine form; M. Milne-Edwards will probably soon tell us which.

The limits of the Passeres being now ascertained with tolerable certainty, the still more difficult question of the subdivision of the Order presents itself. On this subject Garrod's first memoir on the anatomy of the Passerine birds‡ gives us a summary of the latest information, not only as regards the lamented author's own elaborate investigations, but also as concerns the labours of previous authors. Garrod's proposed system for the arrangement of the Passeres is as follows:—

Passeres.
- Acromyodi (Oscines).
  - Normales.
  - Abnormales.
    - *Menura.*
    - *Atrichia.*
- Mesomyodi.
  - Heteromeri.
    - Pipridæ.
    - Cotingidæ.
  - Homœomeri.
    - Tracheophonæ.
    - Haploophonæ.

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* Ibis, 1872, p. 177. See also Murie, Ibis, 1872, p. 410.

† Nitzsch, Pterylogr. p. 89.

‡ P. Z. S. 1876, p. 506.

In this scheme it will be observed that the Oligomyodæ, as, in accordance with Prof. Huxley's suggestion (P. Z. S. 1867, p. 471), the great American group of Passeres with only three pairs of singing-muscles was denominated in our 'Nomenclator,' are divided into two sections, and the Tracheophonæ are interposed between them. In consequence of the development of a femoral in the place of a sciatic artery, the Pipridæ and Cotingidæ (with the exception of *Rupicola*) are placed by themselves in a second primary division (*Heteromeri*) of non-Oscinine Passeres. But it seems to me that this arterial character, although no doubt of importance, is not as yet sufficiently understood and investigated to allow it to rank before the well-ascertained structure of the lower larynx. Again, it is quite obvious that the Acromyodi abnormales (i. e. *Menura* and *Atrichia*), although they approach the true Oscines in their syringeal structure, are divergent from the rest of the Passeres by much more important osteological characters. For the present, therefore, I am disposed to uphold the system of the division of the Passeres employed in the 'Nomenclator' as still the most convenient to be adopted, and to place the Acromyodi abnormales of Garrod (which, being extra-American, were not included in the 'Nomenclator') at the end of the Passerine series under the name Pseudoscines. The arrangement would then come out as follows:—

i. Oscines.
ii. Oligomyodæ.
iii. Tracheophonæ.
iv. Pseudoscines { *a.* Atrichiidæ.
 b. Menuridæ.

We thus get the advantage of having what are certainly the most anomalous forms of Passerine birds yet known at the end of the series.

We must now approach the still more vexed question of the division of the Oscines into families. The difficulty here obviously arises from the fact that the Oscines are all very closely related to one another, and, in reality, form little more than one group, equivalent to other so-called families of birds. As, however, there are some 4700 species of Oscines known, it is absolutely necessary to subdivide them; and the task of doing this in the most convenient and natural way is not an easy one.

Sundevall, who has certainly devoted more time and attention to the external characters of the Passeres than any other naturalist of this century, in his last work ('Methodi Naturalis Avium disponendarum Tentamen,' Stockholm, 1872) divided his "Oscines laminiplantares" (which are equivalent to the Passeres here considered, with the exception of the Larks) into six "Cohortes," as follows:—

i. Cichlomorphæ	50 fam.	iv. Certhiomorphæ	3 fam.
ii. Conirostres	15 „	v. Cinnyrimorphæ	5 „
iii. Coliomorphæ......	15 „	vi. Chelidomorphæ	1 „

Sundevall's characters are derived partly from the structure of the bill and partly from other points, and his six primary divisions seem to me to be very naturally conceived. On the other hand, Mr. Wallace's well-known arrangement of the Passeres, first proposed in this Journal*, and subsequently followed in his great work on distribution, is based entirely upon the structure of the wing. Mr. Wallace's Formicaroid and Anomalous Passeres correspond nearly with what I call the Oligomyodæ, Tracheophonæ, and Pseudoscines, whilst the Oscines are distributed in his arrangement under three heads, as follows:—

Series A. TYPICAL OR TURDOID PASSERES.

Wing with 10 primaries, the first always more or less markedly reduced in size.

1. Turdidæ.
2. Sylviidæ.
3. Timaliidæ.
4. Cinclidæ.
5. Troglodytidæ.
6. Certhiidæ.
7. Paridæ.
8. Leiotrichidæ.
9. Phyllornithidæ.
10. Pycnonotidæ.
11. Oriolidæ.
12. Campephagidæ.
13. Dicruridæ.
14. Muscicapidæ.
15. Vireonidæ.
16. Pachycephalidæ.

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* Ibis, 1874, p. 406.

17. Laniidæ.
18. Corvidæ.
19. Paradiseidæ.
20. Meliphagidæ.
21. Nectariniidæ.

Series B. Tanagroid Passeres.

Wing with 9 primaries, the first of which is fully developed and usually very long.

1. Motacillidæ.
2. Mniotiltidæ.
3. Cœrebidæ.
4. Drepanidæ.
5. Dicæidæ.
6. Ampelidæ.
7. Hirundinidæ.
8. Tanagridæ.
9. Fringillidæ.
10. Icteridæ.

Series C. Sturnoid Passeres.

Wing with 10 primaries, the first of which is rudimentary.

1. Ploceidæ.
2. Sturnidæ.
3. Artamidæ.
4. Alaudidæ.

The objection to this arrangement is that it separates some very nearly allied forms far too widely. The "spurious primary" which Mr. Wallace relies upon to divide his Tanagroids and Sturnoids is not always even a *generic* character. In *Vireo,* for example, it varies in the different species, being present in some and absent in others. Mr. Wallace puts the Alaudidæ amongst his Sturnoids; but in some Larks (*Calandrella* &c.) the spurious primary is altogether wanting. The Ploceidæ and Fringillidæ, which are barely distinguishable as families, fall under different heads, as do the Sturnidæ and Icteridæ. Yet there cannot be a doubt as to the intimate connexion of the two last-named families.

In my opinion Sundevall's groups of the Oscines are therefore far more naturally conceived; and in our 'Nomenclator' I have nearly followed them, using only the more familiar expressions ending in "rostres," throughout the divisions. Thus:—

Sundevall's Cichlomorphæ = Oscines dentirostres of the 'Nomenclator.'
" Conirostres = Oscines conirostres "
" Coliomorphæ* = Oscines cultrirostres "
" Cinnyrimorphæ = Oscines tenuirostres "
" Chelidomorphæ = Oscines latirostres "

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* Mr. Sharpe's "Coliomorphæ" (Cat. Birds, iii. pp. 3, 4) is quite a dif-

No species of Sundevall's "Certhiomorphæ" being found in the New World, I have not given that group any equivalent designation. But calling these "Oscines curvirostres," for uniformity's sake, and keeping the Larks apart on account of their peculiar *planta*, I should propose to arrange the Oscines as follows:—

A. Laminiplantares.	1. Dentirostres.
	2. Latirostres.
	3. Curvirostres.
	4. Tenuirostres.
	5. Conirostres.
	6. Cultrirostres.
B. Scutiplantares.	(Alaudidæ.)

These six groups may, I think, be separated without much difficulty. But when we come to attempt to subdivide them, there is room for endless varieties of opinion as to the nearest allies of many of the forms. It would, I fear, be impossible to discuss the best arrangement of the different subdivisions of these groups within the limits of this paper.

The second suborder of Passeres, the Oligomyodæ, are not nearly so numerous as the Oscines. It embraces, however, according to the present state of our knowledge, some 550 species, belonging to 8 families, most of which are restricted to the New World.

New World.	*Old World.*
Oxyrhamphidæ.	Pittidæ.
Tyrannidæ.	Philipittidæ.
Pipridæ.	—
Cotingidæ.	Eurylæmidæ.
Phytotomidæ.	

---

ferent group from that designated by Sundevall ('Tentamen,' p. 37) by the same name. Sundevall's Coliomorphæ is nearly equivalent to my "Oscines cultrirostres" (Sundevall's group includes *Irrisor*, on which point see above, p. 343), and consists of the following families (according to my nomenclature):—Icteridæ, Sturnidæ, Buphagidæ, Paradiseidæ, and Corvidæ. But Mr. Sharpe puts in his "Coliomorphæ" only the last two of these five families, and adds to them the Oriolidæ, Dicruridæ, and Prionopidæ. The first two of these belong to Sundevall's Cichlomorphæ (*i. e.* my Dentirostres); the last consists of a heterogeneous assemblage of genera, mostly also Dentirostres, but having, in my opinion, no sort of connexion together.

Of these the Eurylæmidæ must be deemed, without doubt, the most aberrant, on account of the non-freedom of the flexor hallucis, above alluded to, which is unique in the order of Passeres.

The third suborder of Passeres, the Tracheophonæ, distinguished by the peculiar structure of the syrinx, first described by Johann Müller, is entirely confined to the New World. According to my views, the 500 species which it comprehends should be divided into three families, the last of which is peculiar among all the Passeres in having a double notch at the posterior margin of the sternum. They are:—

Sterni postici fissura unica	1. *Dendrocolaptidæ.* 2. *Formicariidæ.*
Sterni postici fissuris duabus	3. *Pteroptochidæ.*

The fourth and last section of the Passeres, which I have proposed to call Pseudoscines, contains only the anomalous Australian forms *Atrichia* and *Menura*, which are each fully worthy of family rank. When some of the other obscure Australian forms (such as *Orthonyx*) have been further examined, it is very possible that additions will have to be made to this series.

2. CYPSELI sive MACROCHIRES.

It is now universally admitted that the *Cypseli*, although not Passerine, come near to that great Order in many particulars. Nitzsch, in 1829[*], first constituted the group, to contain the Cypselidæ and Trochilidæ, and called them "Macrochires," from the peculiar elongation of the bones of the manus. Sundevall, in 1836, adopted the term, and used the same limits. In his 'Pterylographie,' Nitzsch reduced the rank of the Macrochires to a family of his Picariæ—a group to which, however, he expressly states that he can assign no single peculiar pterylographic character. If we allow due value to palatal structure, we must keep the Macrochires and Pici apart from the rest of the Picariæ of Nitzsch, as Prof. Huxley has shown[†], although he appears not to have fully realized the structure of the palate in the Trochilidæ*. In the 'Nomenclator' four families are assigned to the Order Macrochires—the Trochilidæ, Cypselidæ, Caprimulgidæ, and Steatornithidæ. Of these it is now quite certain, from Garrod's researches, that the last named must be removed to another situation, the palate being strongly desmognathous†. The best place, therefore, for *Steatornis,* according to my present opinion, is either as a family next to the Podargidæ, or, as the form presents so many strong peculiarities, as an independent order next to the Striges.

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[*] 'Obs. de Avium arteria carotide communi.' Halæ, 1829.

[†] P. Z. S. 1867, p. 468.

The Macrochires will therefore consist only of three families—the Trochilidæ, Cypselidæ, and Caprimulgidæ. No one, I believe, will now deny the close alliance of the first two of these families. As regards the Caprimulgidæ, they differ from the typical Macrochires not only in the lesser comparative development of the manus, but also in possessing cæca, and their position will require further consideration.

3. The Pici were first constituted a separate order by Sundevall in 1835‡, to consist of two families, the Picidæ and Iyngidæ. They are the exact equivalent of Prof. Huxley's Celeomorphæ. Garrod (P. Z. S. 1874, p. 123 *et alibi*) would associate with them the Rhamphastidæ and Capitonidæ, as "not in any point presenting family differences;" but if we follow Prof. Huxley in assigning a high value to the structure of the palate, it is quite evident that they should stand alone (*cf.* Huxley, P. Z. S. 1867, p. 468). There is no difficulty in distinguishing the Pici from all other birds—the structure of the tongue and of the feet is quite peculiar; and I think they must remain as an independent order or suborder.

[To be continued.]

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* *Cf.* Parker, Trans. Linn. Soc. ser. 2, Zool. i. p. 116.

† *Cf.* Garrod, P. Z. S. 1873, p. 530.

‡ K. Vet. Ak. Handl. 1835, p. 68.

XXXV.—*A List of Birds collected by the late Henry Durnford during his last Expedition to Tucuman and Salta.* By OSBERT SALVIN, M.A., F.R.S.

(Plates IX. & X.)

IN 'The Ibis' for 1878, p. 493, we recorded the death of Henry Durnford, which lamentable occurrence took place on the 11th July of that year at Campo Santo, near the remote town of Salta, in the Argentine Republic, whither he had gone on a collecting-tour from Buenos Ayres.

After some delay the last collections formed by Durnford were forwarded to his brother, our Member, Mr. W. Arthur Durnford, who sent them to me for examination. My promise to him to name the specimens I now proceed to fulfil.

I have also received his journals, and propose to give some extracts from them in the next number of 'The Ibis.'

The collection of birds consists of 84 specimens belonging to 54 species, which were all obtained, either at Tucuman or near Salta, between the 31st of May and the 29th of June 1878, and thus form a considerable portion of Durnford's work up to within a few days of his death.

The region traversed by Durnford, though previously approached by several eminent travellers, lies, at least so far as Salta is concerned, rather outside the scene of their labours. Our chief authority on the birds of Tucuman is Dr. Burmeister, who visited that province some twenty years ago, and described his travels in his 'Reise durch die La Plata-Staaten,' a work of two volumes, published in 1861. At the end of the second volume a list of the birds of the Argentine Republic is given, to which I have referred in the following notes. Dr. Burmeister, however, does not appear to have gone much beyond Tucuman, but turned his attention to the more southern districts of Cordova and Mendoza. Judging, however, from the collection before me, Salta comes strictly within the zoological territory of both Tucuman and Cordova, as several characteristic and peculiar species of birds are common to all these places. Amongst them are *Saltatricula multicolor*, *Cnipolegus cinereus*, *Upucerthia luscinia*, *Cory-*

phistera alaudina, Campephilus boiei, Picus cactorum, Ortalis canicollis, &c.

A good map of the region accompanies Dr. Burmeister's work.

Of the 54 species of birds obtained by Durnford, 9 are not included in Dr. Burmeister's list, viz.:—*Coryphospingus cristatus, Cnipolegus cinereus, Stigmatura budytoides, Xiphocolaptes major, Picumnus,* sp. inc., *Piaya cayana, Tigrisoma fasciatum,* and *Crypturus tataupa.* But most of these birds have been noticed in the neighbourhood by other travellers.

1. POLIOPTILA DUMICOLA (Vieill.).

Culicivora dumicola, Burm. La Plata-Reise, ii. p. 473.

Tucuman, 2nd June. "Iris light brown; beak, legs, and feet black."

Salta, 13th June.

The Tucuman specimen is apparently a male, agreeing with Mr. Sclater's type of *P. boliviana.* Dr. Burmeister's specimens were from Monte Video and Parana.

2. PARULA PITIAYUMI (Vieill.).

Sylvicola venusta, Burm. La Plata-Reise, ii. p. 473.

Salta, 8th June. "Iris dark brown; upper mandible black, under mandible and legs pale yellow."

A species of wide range in the La Plata States, and is mentioned by Dr. Burmeister as occurring at Parana and Tucuman.

3. CYCLORHIS ALTIROSTRIS, sp. n.

Supra olivacea, capite summo ferrugineo, capitis lateribus griseis; subtus fulvescenti-alba, pectore flavido-olivaceo, gula albicante; rostro robustissimo, maxilla carnescenti-rubra, apice albicantiore, mandibula ad basin nigra, ad apicem albicante; pedibus carneis: long. tota 7·7, alæ 3, caudæ 2·7, rostri a rictu 0·8, tarsi 0·95.

Obs. C. albiventri ex Bahiâ affinis et rostri eodem colore, sed capite summo magis ferrugineo, corporeque subtus fulvescente distinguenda.

Salta, 9th June. "Iris light rufous; upper mandible dark slate, under mandible, legs, and feet pale slate."

Mr. Sclater has a skin of this species in his collection, said to be from Bolivia, and which was called, in his 'Catalogue of American Birds,' *Cyclorhis viridis* (p. 46. no. 280). That species, however, differs in wanting the conspicuous black basal mark on the mandible as well as in other minor characters.

The species I now describe is most nearly allied to *C. albiventris*, a common Bahia bird, but seems to be sufficiently distinct.

4. PYRANGA AZARÆ, d'Orb.

Pyranga azaræ, d'Orb.; Scl. & Salv. P. Z. S. 1879, p. 601.

Pyranga coccinea, Burm. La Plata-Reise, ii. p. 479 (ex Gray).

Tucuman, 3rd June. "Iris wood-brown; beak slate-colour, under mandible lightest; legs pale slate."

♀, Tucuman, 3rd June. "Iris wood-brown; upper mandible dark horn, under mandible and legs pale slate."

Salta, 8th June. "Iris light brown; beak, legs, and feet pale slate, upper mandible darkest."

These specimens agree with others from Bolivia to which d'Orbigny's name is applicable. Dr. Burmeister obtained the species at Parana.

5. SALTATOR CÆRULESCENS, Vieill.

Saltator cærulescens, Burm. La Plata-Reise, ii. p. 480.

♂, Salta, 27th June. "Iris light brown; beak dark horn; legs and feet light horn."

♀, Salta, 27th June.

Also from Parana, according to Dr. Burmeister.

6. GUIRACA GLAUCOCÆRULEA (d'Orb. & Lafr.).

Coccoborus glaucocæruleus, Burm. La Plata-Reise, ii. p. 488.

Tucuman, 4th June. "Beak dark slate, upper mandible darkest; legs slate."

♂, Salta, 15th June. "Iris chocolate; beak, legs, and feet very dark brown."

♂, Salta, 19th June.

A widely ranging species in this region, occurring at Parana according to Dr. Burmeister.

7. SPERMOPHILA ORNATA, Licht.

Sporophila ornata, Burm. La Plata-Reise, ii. p. 488.

♀, Salta, 28th June. "Iris wood-brown; beak horn, upper mandible darkest; legs and feet flesh-colour."

Dr. Burmeister gives Mendoza and Parana as localities where this bird is found.

8. Coryphospingus cristatus (Gm.).

Coryphospingus cristatus, Scl. Cat. Am. B. p. 109.

Salta, 13th June. "Iris wood-brown; beak and feet pale slate, upper mandible darker."

♀, Salta, 22nd June.

Not noticed by Dr. Burmeister.

9. Coryphospingus pusillus (Burm.). (Plate IX. fig. 1.)

Gubernatrix pusilla, Burm. J. f. Orn. 1860, p. 254.

Lophospiza pusilla, Burm. La Plata-Reise, ii. p. 483.

Lophospingus pusilla, Cab. J. f. Orn. 1878, p. 195; Scl. P. Z. S. 1879, p. 460.

Tucuman, 2nd June. "Iris light brown; beak flesh-colour, upper mandible and tips of both dark horn; legs and feet slate-colour."

This species must certainly be placed in the same genus as *Coryphospingus griseocristatus,* as has been suggested by Mr. Sclater. But the propriety of separating these two birds from *Coryphospingus* under the generic name *Lophospingus* seems doubtful. As *C. pusillus* is a little-known bird, the accompanying figure, taken from Durnford's specimen, will be acceptable.

Dr. Burmeister first discovered this Finch near Tucuman; and since then it has been found near Cordova by Dr. Döring.

10. Poospiza melanoleuca (Vieill.). (Plate IX. fig. 2.)

Emberiza melanoleuca, d'Orb. & Lafr. Syn. Av. i. p. 82.

Poospiza melanoleuca, Burm. La Plata-Reise, ii. p. 484.

♀, Tucuman, 1st June. "Iris light red; beak, legs, and feet black."

Though Dr. Burmeister says that this species is common in the La Plata States, Banda Oriental, and Entre Rios, specimens of it are seldom seen in this country. Two in the Strickland collection at Cambridge are the only ones that I have previously met with.

11. Zonotrichia pileata (Bodd.).

Zonotrichia matutina, Burm. La Plata-Reise, ii. p. 486.

Salta, 22nd June. "Iris wood-brown; beak light horn, tip darkest; legs very light horn."

Salta, 22nd June.

One of the commonest birds in South America, ranging from Guatemala throughout the continent to the Argentine Republic.

12. Saltatricula multicolor, Burm.

Saltator multicolor, Burm. J. f. Orn. 1860, p. 254; Cab. J. f. Orn. 1878, p. 195.

Saltatricula multicolor, Burm. La Plata-Reise, ii. p. 481.

Salta, 8th June. "Iris light brown; upper mandible dark horn, under mandible pale yellow; legs and feet slate."

Salta, 15th June. "Iris wood-brown; under mandible and side of upper mandible primrose-yellow, remainder of upper mandible black; legs pale slate."

♀, Salta, 16th June.

A pretty species (of which we have specimens obtained by Herr Weisshaupt near Mendoza), discovered by Dr. Burmeister at Parana.

13. Embernagra olivascens, d'Orb.

Emberiza olivascens, d'Orb. Voy. Am. Mérid. Ois. p. 285; Burm. La Plata-Reise, ii. p. 485.

A young specimen, of which the label has been lost. Dr. Burmeister's specimens were obtained near Mendoza.

14. Sycalis, sp. inc.

Salta, 19th June. "Iris wood-brown; beak horn, under mandible lighter; legs and feet slate."

A young bird, which I am not able to determine satisfactorily. Dr. Burmeister obtained *S. luteiventris* (Meyen) at Parana and Tucuman, and *S. chloropsis*, Cab., at Mendoza.

15. Chrysomitris magellanica (Vieill.).

Chrysomitris magellanica, Burm. La Plata-Reise, ii. p. 489.

Chrysomitris barbata, Scl. & Salv. Nomencl. p. 34 (ex Molina).

♂, Salta, 21st June. "Iris wood-brown; beak dark horn; legs and feet light horn."

♀, Salta, 21st June.

Found everywhere in this region.

16. Icterus pyrrhopterus (Vieill.).

Xanthornus pyrrhopterus, Burm. La Plata-Reise, ii. p. 493.

Salta, 19th June. "Iris chocolate; beak black; legs slate."

A species of wide range, Parana, Tucuman, and Rio Uruguay being included in Dr. Burmeister's localities.

17. Cyanocorax chrysops (Vieill.).

Cyanocorax pileatus, Burm. La Plata-Reise, ii. p. 495.

Tucuman, 31st May. "Iris light orange; beak, legs, and feet black."

Also of wide range, Banda Oriental, Mercedes, and Tucuman being mentioned amongst its localities by Dr. Burmeister.

18. Agriornis striatus, Gould.

Agriornis striatus, Burm. La Plata-Reise, ii. p. 459.

Tucuman, 4th June. "Iris wood-brown; beak, legs, and feet black."

A close ally of *A. lividus* (Kittl.) of Chili, but differing, as pointed out by Dr. Burmeister, who obtained specimens on the Rio Quarto, in having the outer web of the outer tail-feather wholly white to the shaft, instead of a white edge running along the web of the feather.

19. Cnipolegus anthracinus, Heine.

Cnipolegus anthracinus, Cab. J. f. Orn. 1859, p. 334; 1878, p. 197.

Cnipolegus cyaneirostris, Burm. La Plata-Reise, ii. p. 457.

♀, Salta, 22nd June. "Beak dark horn; legs and feet black."

This specimen agrees with others of the same sex from the neighbourhood of Mendoza. Dr. Döring found the species in the Sierra de Cordova and on the banks of the Rio Guayquirazo.

20. CNIPOLEGUS CINEREUS, Scl. (Plate X.)

Cnipolegus cinereus, Scl. P. Z. S. 1870, p. 58, 1879, p. 460; Cab. J. f. Orn. 1878, p. 197.

♂, Tucuman, 1st June. "Iris scarlet; beak, legs, and feet black."

♀, Salta, 13th June. "Iris light brown; beak dark horn; legs and feet black."

♂, Salta, 22nd June. "Iris scarlet; beak slate, tip darkest; legs and feet slate."

Originally described by Mr. Sclater from a male specimen belonging to the Smithsonian Institution, obtained by Capt. Page during his exploration of the Rio Vermejo. Dr. Döring has since found it near Cordova. The species was not noticed by Dr. Burmeister. The figures (Plate X.) are taken from the Salta specimens.

21. MACHETORNIS RIXOSA (Vieill.).

Machetornis rixosa, Burm. La Plata-Reise, ii. p. 458.

Salta, 9th June. "Iris orange; beak, legs, feet, and claws black."

A common species of wide range, found also at Parana by Dr. Burmeister.

22. EUSCARTHMUS MARGARITACEIVENTRIS (d'Orb. & Lafr.).

Triccus margaritiventris, Burm. La Plata-Reise, ii. p. 456.

Tucuman, 3rd June. "Iris pale primrose; beak black, under mandible light brown; legs flesh-colour."

Dr. Burmeister's specimens were from Parana.

This is the true *E. margaritaceiventris,* agreeing well with d'Orbigny's plate. The bird so named by Herr. v. Pelzeln belongs to another species, having a dull brownish instead of a clear grey head.

23. STIGMATURA BUDYTOIDES (d'Orb. & Lafr.).

Stigmatura budytoides, Scl. & Salv. P. Z. S. 1866, p. 188.

Tucuman, 3rd June. "Iris light brown; beak, legs, and feet black."

Salta, 15th June. "Iris wood-brown; beak, legs, and feet black."

The only specimens of this curious form previously seen by me were those obtained on the Rio Ucayali by Mr. E. Bartlett, one of which is in Mr. Sclater's collection. D'Orbigny's specimens were obtained at Mizqui and in the valley of Chuluani. *Phylloscartes flavocinereus,* described by Dr. Burmeister from specimens obtained by him at Mendoza, seems to be strictly congeneric with the present bird, but may at once be distinguished by the absence of the band on the tail, a conspicuous feature in *S. budytoides.*

24. UPUCERTHIA LUSCINIA (Burm.).

Ochetorhynchus luscinia, Burm. J. f. Orn. 1860, p. 349; La Plata-Reise, ii. p. 464; Cab. J. f. Orn. 1878, p. 196.

♀, Salta, 9th June. "Iris light rufous brown; upper mandible dark horn, lower mandible pale slate; legs and feet dark slate."

♂, Salta, 16th June.

These specimens agree with typical examples from Mendoza, where the species was discovered by Dr. Burmeister.

25. SYNALLAXIS FRONTALIS, Pelz.

Synallaxis frontalis, Scl. P. Z. S. 1874, p. 8.

Synallaxis ruficapilla, Burm. La Plata-Reise, ii. p. 468.

Salta 12th June. "Iris light brown; beak dark horn; legs and feet flesh-colour."

Obtained by Dr. Burmeister near Parana.

26. SYNALLAXIS STRIATICEPS, d'Orb. & Lafr.

Synallaxis striaticeps, Burm. La Plata-Reise, ii. p. 469; Scl. P. Z. S. 1874, p. 21.

♂, Salta, 13th June. "Iris light rufous; beak pale horn, upper mandible darkest; legs and feet dark slate."

Salta, 29th June.

Rio Quinto and Parana are Dr. Burmeister's localities for this species.

27. SYNALLAXIS ORBIGNII, Reich.

Synallaxis orbignii, Scl. P. Z. S. 1874, p. 22; 1879, p. 461.

Synallaxis humicola, Burm. La Plata-Reise, ii. p. 468.

♂, Salta, 16th June. "Iris light brown; beak dark horn; legs pale slate."

Obtained at Parana and Mendoza by Dr. Burmeister.

28. CORYPHISTERA ALAUDINA, Burm.

Coryphistera alaudina, Burm. J. f. Orn. 1860, p. 251; La Plata-Reise, ii. p. 470; Sclater, P. Z. S. 1870, p. 57, pl. iii.

♀, Tucuman, 31st May. "Iris light brown; beak, legs, and feet dark flesh-colour."

Tucuman, 31st May.

♂, Salta, 8th June.

This curious species was discovered by Burmeister at Parana, and was also obtained during Capt. Page's expedition. It was from a specimen of the latter explorer's that Mr. Sclater's figure was taken.

There is no difference in the plumage of the sexes.

29. PHACELLODOMUS FRONTALIS (Licht.).

Phacellodomus frontalis, Burm. La Plata-Reise, ii. p. 467.

♀, Salta, 13th June. "Iris pale green; beak horn, base of under mandible yellow; legs pale slate."

Tucuman was where Dr. Burmeister's specimens were obtained.

30. XIPHOCOLAPTES MAJOR (Vieill.).

Xiphocolaptes major, Scl. & Salv. Ex. Orn. p. 71, t. 36.

♂, Tucuman, 1st June. "Iris light brown; beak pale slate, tip darker; legs and feet olive-green."

Not noticed by Dr. Burmeister.

31. THAMNOPHILUS MAJOR, Vieill.

Thamnophilus stagurus, Burm. La Plata-Reise, ii. p. 471.

Tucuman, 3rd June. "Iris scarlet; beak dark slate, under mandible lighter; legs pale slate."

Salta, 19th June. "Iris scarlet; beak horn; legs pale slate."

This is doubtless the true *T. major* of Vieillot, based upon the "Batara major" of Azara. The specimens agree with others from Bahia. The Guianan race, to which the name *T. major* has been applied, differs slightly in the white markings of the tail being less distinct. The name this northern race should bear is probably *T. borbæ*, Pelzeln. *T. major* has a wide range in this region, where Dr. Burmeister found it at Parana, Monte Video, and Tucuman.

32. THAMNOPHILUS CÆRULESCENS, Vieill.

Thamnophilus cærulescens, Burm. La Plata-Reise, ii. p. 472.

♂, Salta, 27th June. "Iris light brown; beak horn, tip darkest; legs and feet slate."

♀, Salta, 27th June.

According to Dr. Burmeister, a species of wide range in this region, Tucuman being included by him amongst the places where he met with it.

33. CHLOROSTILBON SPLENDIDUS (Vieill.).

Hylocharis bicolor, Burm. La Plata-Reise, ii. p. 448.

♂, Salta, 19th June. "Iris wood-brown; beak flesh-colour; legs and feet black."

A common species in this district, where Dr. Burmeister found it at Mendoza, Parana, and Tucuman.

34. SAPPHO SPARGANURA (Shaw).

Cometes sparganurus, Burm. La Plata-Reise, ii. p. 449.

♀, Tucuman, 1st June.

♂, Tucuman, 3rd June.

♂, Tucuman, 3rd June. "Iris dark brown; beak, legs, and feet black."

♂, Salta, 10th June.

One specimen without label.

Not uncommon in this district, according to Burmeister, and spreading southwards to Mendoza, being not uncommon at Catamarca and Tucuman.

35. PICUMNUS, sp. inc.

♀, Salta, 13th June. "Iris wood-brown; beak dark horn-colour, base of lower mandible lighter; legs and feet olive-green."

Salta, 27th June.

Salta, 27th June.

All these skins are in female or young plumage, and being in rather poor condition, their determination can hardly be settled satisfactorily.

36. CAMPEPHILUS BOIEI (Wagl.).

Dryocopus atriventris, d'Orb.; Burm. La Plata-Reise, ii. p. 444.

♀, Salta, 27th June. "Iris primrose; beak white; legs and feet pale slate."

Salta, 27th June.

Dr. Burmeister's specimens were obtained at Tucuman.

37. PICUS CACTORUM, d'Orb.

Dendrobates cactorum, Burm. La Plata-Reise, ii. p. 445.

♀, Salta, 8th June. "Iris light brown; beak black; legs slate."

Obtained by Dr. Burmeister at Catamarca.

38. LEUCONERPES CANDIDUS (Otto).

Leuconerpes candidus, Burm. La Plata-Reise, ii. p. 445.

♀, Salta, 29th June. "Iris white; cere primrose; beak dark horn; legs pale slate."

A species of wide range in Brazil. Dr. Burmeister's specimens were from Parana and Cordova.

39. CERYLE AMERICANA (Gm.).

Chloroceryle americana, Burm. La Plata-Reise, ii. p. 447.

♂ ♀, Salta, 28th June. "Iris wood-brown; beak, legs, feet, and claws black."

Widely distributed.

40. PIAYA CAYANA (Linn.).

♂, Tucuman, 1st June. "Iris and cere crimson; beak pea-green; legs and feet black."

Not observed in this district by Dr. Burmeister.

41. CHRYSOTIS ÆSTIVA (Linn.).

Psittacus amazonicus, Burm. La Plata-Reise, ii. p. 443.

♂, Salta, 19th June. "Iris scarlet; beak dark horn; legs pale slate."

This is undoubtedly the "Loro cabeza amarilla" of Azara (Apunt. ii. p. 440. no. 285), and, so far as I can see, not specifically different from *Chrysotis æstiva*. The specimen agrees with Mr. Sclater's example from Paraguay (Cat. A. B. p. 353. no. 2106 *b*).

42. BUBO MAGELLANICUS (Gm.).

Bubo crassirostris, Vieill.; Burm. La Plata-Reise, ii. p. 439.

Salta, 29th June. "Iris orange; beak, feet, and claws black."

This specimen belongs to the southern race of *B. virginianus*, of which Dr. Burmeister obtained specimens at Mendoza.

43. Buteo erythronotus (King).

Buteo tricolor, Burm. La Plata-Reise, ii. p. 436.

♀, Salta, 22nd June. "Iris light chocolate; cere pale slate, base of beak pale slate, tip darker; legs and feet primrose; claws black."

A species of wide range in this district, according to Dr. Burmeister, and spreading southwards to the extremity of the continent.

44. Urubitinga meridionalis (Lath.).

Asturina rutilans, Burm. La Plata-Reise, ii. p. 436.

Salta, 9th June.

A common species at Tucuman, according to Dr. Burmeister.

45. Urubitinga unicincta (Temm.).

Asturina unicincta, Burm. La Plata-Reise, ii. p. 436.

Salta, 11th June. "Iris orange; legs orange; beak dark horn."

Recorded from Mendoza by Dr. Burmeister.

46. Tinnunculus sparverius (Linn.).

Falco sparverius, Burm. La Plata-Reise, ii. p. 437.

♂, Salta, 26th June. "Iris chocolate; cere pale orange; beak horn-colour, tip darkest; legs and feet orange."

Common everywhere, according to Dr. Burmeister. The race of the American Kestrel found in these parts is that to which the name *T. cinnamominus* (Sw.) (*cf.* Sharpe, Cat. B. i. p. 349) has been applied. The top of the head is uniform dark slate-grey, without an occipital rufous patch, as in the North-American bird.

47. Hypotriorchis femoralis (Temm.).

Falco femoralis, Burm. La Plata-Reise, ii. p. 437.

♂, Salta, 21st June. "Iris chocolate; beak horn-colour, tip darkest; legs and feet orange."

Obtained by Dr. Burmeister in the pampas, near the Rio Quarto.

48. TIGRISOMA FASCIATUM (Such).

Tigrisoma fasciatum, Scl. & Salv. Ex. Orn. p. 183, pl. xcii.

♀, Salta, 28th June. "Iris and cere primrose; beak black, and under mandible below yellow; legs and feet dark olivaceous."

This specimen is in apparently fully adult plumage, and has the whole of the head and neck deep rufous, with the exception of the middle of the latter, which is white, edged with black. The back is nearly uniform grey, with a greenish cast, and throughout finely irrorated with black waved lines, each feather having a dark centre. The under surface is grey, with a ferruginous tinge. The colour of the plumage is very different from that of our figure; but as the arrangement of the feathering of the throat and of the base of the mandible is the same, I believe this specimen to be of the same species in a more advanced plumage, perhaps peculiar to the female.

49. PHIMOSUS INFUSCATUS (Licht.).

Ibis infuscata, Burm. La Plata-Reise, ii. p. 511.

♂, Salta, 28th June. "Iris light brown; cere and naked skin at base of beak pink; beak dingy white; legs and feet pale pink."

Found on the Rio Parana by Dr. Burmeister.

50. LEPTOPTILA CHALCAUCHENIA, Scl. & Salv. P. Z. S. 1869, p. 633.

Peristera frontalis, Burm. La Plata-Reise, ii. p. 497.

Salta, 13th June. "Iris orange; beak black; legs and feet pink."

Found at Tucuman, Parana, and throughout the La Plata region by Dr. Burmeister.

51. ORTALIS CANICOLLIS, Wagl.

Penelope canicollis, Burm. La Plata-Reise, ii. p. 499.

♀, Tucuman, 4th June. "Iris very light rufous brown; beak pale horn; legs flesh-colour."

♀, Salta, 16th June.

This bird is, no doubt, Azara's "Jacú caraguatá," on which Wagler founded his *O. canicollis*. It was found by Dr. Burmeister between Tucuman and the foot of the Sierra.

52. Cariama burmeisteri, Hartl.

Dicholophus burmeisteri, Hartl. P. Z. S. 1860, p. 335; Burm. La Plata-Reise, ii. p. 506.

♀, Tucuman, 1st June. "Iris light brown; beak, legs, and feet black."

A not uncommon bird in this district, according to Dr. Burmeister, who found it at La Rioja, Catamarca, and Tucuman.

53. Crypturus tataupa (Temm.).

♀, Salta, 28th June. "Iris chocolate; beak blood-red; legs and feet pale purple."

Not noticed by Dr. Burmeister in this region.

54. Nothura cinerascens, Burm.

Nothura cinerascens, Burm. J. f. Orn. 1860, p. 350; La Plata-Reise, ii. p. 498.

Nothoprocta cinerascens, Cab. J. f. Orn. 1878, p. 198.

Tucuman, 3rd June. "Iris orange-red; beak slate, under mandible and legs light slate."

A species discovered by Dr. Burmeister at Cordova (where Dr. Döring also found it) and Tucuman, to which Durnford's specimen undoubtedly belongs. We have other specimens from the neighbourhood of Mendoza, showing that the bird has a considerable range in this region.

XXXVI.—*On an apparently new Species of Pigeon of the Genus* Otidiphaps *from Southern New Guinea.* By Osbert Salvin and F. DuCane Godman.

(Plate XI.)

Otidiphaps regalis, sp. n. (Plate XI.)

Supra læte castanea, purpureo sub certa luce tincta; alis extus pure castaneis; dorso postico et supracaudalibus intense viridibus, cauda paulo nigricantiore; capite toto nigro, torque cervicali æneo nitente, macula nuchali grisea; subtus læte purpurea, abdomine viridi lavato; rostro ruberrimo, pedibus carneo-rubris: long. tota 18 poll. angl., alæ 7·3, caudæ rectr. ext. 3·4, rectr. med. 6·5, rostri a rictu 1·3, tarsi 2·5, dig. med. cum ungue 2·0.

Hab. in montibus "Owen Stanley" dictis, Novæ Guineæ meridionalis (*Goldie*).

Obs. *O. nobili* certè affinis, sed cristâ elongatâ nullâ, torque cervicali æneo, maculâ nuchali griseâ nec æneo-viridi, dorso postico viridi nec purpureo, et caudâ minus elongatâ primo visu distinguenda.

A few weeks ago we had the pleasure of receiving from Mr. Andrew Goldie a box containing a collection of bird-skins, made by this now well-known naturalist in the neighbourhood of Port Moresby, on the southern coast of New Guinea. Mr. Goldie's collecting-ground extended inland to a distance of thirty miles from the coast towards the Owen Stanley range of mountains, which here forms the backbone, as it were, of New Guinea, and runs in a south-easterly direction to the extremity of the island. We have not yet been able to have the whole collection critically examined, but we do not hesitate to describe this magnificent Pigeon, which, so far as we are aware, has not previously been seen in Europe.

In form it exactly corresponds with the only hitherto known member of the genus, *Otidiphaps nobilis*, a bird described by Mr. Gould ten years ago, and figured by him in the 23rd part of his 'Birds of Asia.' The latter species is an inhabitant of the north-western portion of New Guinea*, a few specimens being sometimes included in collections formed in the Arfak mountains, and is now a fairly well-known bird. The present species differs from *O. nobilis* in many marked details, which we have noticed above, and which are displayed in the accompanying figure. This should be compared with Mr. Gould's plate, when the differences between the two birds will be manifest.

Besides the birds sent us by Mr. Goldie, we have also received from him a large collection of Diurnal Lepidoptera from the same districts where he obtained this new *Otidiphaps*. Amongst these are several species not previously known to us, showing that, in spite of the comparatively disappointing fauna of the low coast of Southern New

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* *Cf.* Salvadori, Ann. Mus. Genov. ix. p. 207.

Guinea, the higher mountains of the interior offer a field of brilliant promise, where, as in the case of this *Otidiphaps* and in other species of birds which will occur to the recollection of those who have studied Papuan ornithology, a whole series of forms differing from but allied to the wonderful species of the Arfak mountains may yet be discovered.

Mr. Goldie sends no notes on the habits of *Otidiphaps regalis,* which is to be regretted; he merely states that he obtained it in 1879 in the Owen Stanley range, thirty miles inland from Port Moresby.

XXXVII.—*Notices of recent Ornithological Publications.*

[Continued from p. 245.]

47. *Barboza du Bocage on the Fauna of West Africa.*

[Subsidios para a Fauna das possessões portuguezas d'Africa occidental. Por J. V. Barboza du Bocage. Jorn. Scien. Math. Phys. e Nat. Lisboa, no. xxvi. 1879.]

An account is here given of collections (1) from the Island of Thomé, made by Sr. Custodio de Borja, in which 8 species of birds are enumerated; (2) from Angola, between Bihé and Cassange, made by Srs. Capello and Ivens, which contained examples of 27 species. In the latter a new Bush-Shrike, ***Fiscus capelli,*** is described next to *F. collaris.*

48. *Barboza du Bocage on Birds from West Africa.*

[Aves das possessões portuguezas d'Africa occidental. Por J. V. Barboza du Bocage. (Decimottava Lista.) Jorn. Scien. Math. Phys. e Nat. Lisboa, no. xxvi. 1879.]

Prof. Barboza's eighteenth contribution to this subject enumerates 17 birds, of which examples have recently been transmitted by the indefatigable collector Anchieta from the vicinity of Novo Redondo. All are known species, except a *Drymœca,* which is not finally determined.

49. *Brewer on the Birds of New England.*

[Some Additional Notes upon Birds observed in New England, with the

Names of Five Species not included in his previous Lists of New-England Birds. By T. M. Brewer. Proc. Boston Soc. N. H. xx. p. 263.]

In this paper Dr. Brewer, whose untimely death we have recently chronicled, gives supplementary notes to his former paper on the birds of New England (Proc. Boston Soc. Nat. Hist. xix. p. 301, 1878), and records the occurrence of 5 species not included in the previous list. The most remarkable discovery noticed is that of the existence in Maine and Vermont of colonies of *Lanius ludovicianus,* hitherto regarded as an extreme southern species.

50. *Buller on* Eudynamis taitensis.

[Remarks on the Long-tailed Cuckoo (*Eudynamis taitensis*). By Walter L. Buller. Trans. N.-Zealand Inst. xi. p. 353.]

Dr. Buller remarks on the similarity of plumage between *Eudynamis taitensis* of New Zealand and *Accipiter cooperi* of North America.

51. *Buller on a Species of* Lestris.

[Remarks on a Species of *Lestris* inhabiting our Seas. By Walter L. Buller. Trans. N.-Zealand Inst. xi. p. 355.]

Dr. Buller discusses the question to what species the smaller Skua of New Zealand is to be referred. In his 'Birds of New Zealand' Dr. Buller called it *Stercorarius parasiticus, i. e.* Buffon's Skua, while Mr. Howard Saunders, in his well-known review of the group (P. Z. S. 1876), referred it to *S. crepidatus* (Richardson's Skua). Dr. Buller gives reasons why it cannot be either of these species. It is, however, apparently only a straggler in New Zealand, being only known to have occurred there four times.

52. *Buller on* Larus bulleri.

[Note on Mr. Howard Saunders's Review of the Larinæ, or Gulls. By Walter L. Buller. Trans. N.-Zealand Inst. xi. p. 359.]

Dr. Buller gives his reason for assenting to Mr. Howard Saunders's conclusion that the Black-billed Gull of New Zealand must stand as *Larus bulleri.*

53. *Buller on the Occurrence of* Hirundo nigricans *in New Zealand.*

[On a further Occurrence of the Australian Tree-Swallow (*Hylochelidon nigricans*) in New Zealand. By Walter L. Buller. Trans. N.-Zealand Inst. xi. p. 360.]

Dr. Buller records the occurrence of a "Martin" in New Zealand near Blenheim, as observed by Mr. J. R. W. Cook. This was probably *Hylochelidon nigricans* of Australia, which had already been twice obtained in New Zealand.

54. *Buller on Additions to the Birds of New Zealand.*

[Additions to List of Species, and Notices of rare Occurrences, since the publication of 'The Birds of New Zealand.' By Walter L. Buller. Trans. N.-Zealand Inst. xi. p. 361.]

A useful paper, in which notes are given of additional occurrences of rare species in New Zealand, and of new species, some of which are more or less doubtful. Thirty species are altogether mentioned.

55. *Buller's Contributions to the Ornithology of New Zealand.*

[Further Contributions to the Ornithology of New Zealand. By Walter L. Buller. Trans. N.-Zealand Inst. xi. p. 366.]

This paper, read a month later, is of a similar character to the last, and contains notes on 17 rare or little-known species.

56. *'Bulletin' of the Nuttall Ornithological Club.*

[Vol. iv. no. 4, October 1879; vol. v. no. 1, January 1880.]

These numbers of the 'Bulletin' contain many papers and notes of interest to American ornithologists. Mr. Ridgway (1879, p. 218) describes a new American *Peucæa* (*P. illinoensis*) from "the semi-prairie districts, extending from Southern Illinois to Central Texas," formerly referred to *P. æstivalis*. Mr. Ridgway, however, subsequently (1880, p. 52) degraded the form into a subspecies, as "*P. æstivalis illinoensis.*" It appears, from the same gentleman's examination, that "*Helminthophaga gunnii*, Gibbs," a supposed new species, described in the 'Daily Democrat' of Grand Rapids for June 1, 1879, is not different from *H. leucobronchialis*, of which rare species, however, every additional example is of the greatest interest.

57. *Bureau on the Moulting of the Beak in Birds.*

[Recherches sur la Mue du Bec des Oiseaux de la famille des Mormonidés. Par le Docteur Louis Bureau. Bull. Soc. Zool. France, 1879.]

A full account of this notable discovery, which should be read by all ornithologists. The phenomenon, first observed in *Fratercula*, is now shown to prevail through the allied genera *Lunda*, *Chimerina*, *Ombria*, and *Simorhynchus*, and enables us to discard several nominal species as being only seasonal forms. *Sagmatorhina lathami*=*Lunda cirrhata*; *Sagmatorhina suckleyi* and *Ceratorhyncha monocerata*=*Chimerina cornuta*; *Simorhynchus dubius* and *S. tetraculus*=*S. cristatellus*; and *S. cassini*=*S. kamtschaticus*. Six excellent plates are given to illustrate this important memoir.

58. *Frenzel on Parrots of the Genus* Coryllis.

[Ueber Fledermauspapageien (Gattung *Coryllis*) von A. Frenzel. Monatsb. d. deutsch. Vereins f. d. Schütze d. Vögelwelt, 1880, no. 1.]

Hr. Frenzel writes an enthusiastic chapter on the little Hanging Parrakeets of the genus *Loriculus* (sive *Coryllis*), of which some twenty species are now known, and on their habits in captivity. A good coloured lithograph is given of *C. galgulus*.

59. *Giglioli and Manzella's Figures of Italian Birds.*

[Iconografia dell' Avifauna Italica, ovvero tavole illustranti le specie di Uccelli che trovansi in Italia, con brevi descrizioni e note. Testo del Dott. Enrico Hillyer Giglioli. Tavole di Alberto Manzella. Fasc. i.–iv. Folio. Prato, 1879–80.]

The four livraisons which we have seen of this work contain each five coloured lithographic plates of Italian birds, with accompanying letterpress. A list given in the first part shows that the authors include 418 species in the Italian avifauna. One of the species, figured in part 2, is *Hydrornia* (i. e. *Porphyrio*) *alleni*, of which it is stated that two examples have indubitably occurred near Lucca.

60. *Godman and Salvin's 'Biologia Centrali-Americana.'*

[Biologia Centrali-Americana; or, Contributions to the Knowledge of the Fauna and Flora of Mexico and Central America. Edited by F. DuCane Godman and Osbert Salvin. (Zoology.) Parts iii. & iv. 4to. London, 1880. Published for the Editors by R. H. Porter, 10 Chandos Street, Cavendish Square, W.]

The Central-American Wrens are mostly treated of in the ornithological portion of these two parts. *Thryothorus hyperythrus* (for a northern form of *T. rutilus*), *T. hypospodius* (for the Columbian form), and *T. bairdi* (for a southern race of *T. bewicki*) are names now used for the first time; and the following species are figured:—

Polioptila albiloris.
Microcerculus philomela.
—— luscinia.
Thryophilus thoracicus.
—— semibadius.
Thryothorus atrigularis.
—— felix.
—— albinucha.
Cistothorus elegans.

61. *Hutton on* Phalacrocorax carunculatus.

[On *Phalacrocorax carunculatus*, Gmelin. By Prof. F. W. Hutton. Trans. N.-Z. Inst. xi. p. 332.]

After a review of the literature, Prof. Hutton points out the differences between the New-Zealand and Antarctic-American Cormorants, hitherto usually united under this name. To the latter he proposes to restrict the term *carunculatus*, and to call the former *cirrhatus* (Gm.). Under *Ph. carunculatus* he places the bird of Kerguelen Island, which, however, is quite distinct, being *Ph. verrucosus*, Cab. Journ. f. Orn. 1875, p. 450. *Cf.* also upon this question Scl. et Salv. P. Z. S. 1878, p. 652.

62. *Jouan on the Birds of Oceania.*

[Notes sur la Distribution Géographique des Oiseaux dans quelques archipels de l'Océanie. Par M. Henri Jouan. Mém. Soc. Sci. Nat. Cherbourg, tome xxi. p. 293.]

After some general remarks on the avifauna of the island-groups of the Pacific, the author gives lists of the birds of the Sandwich Islands, Marquesas, Fiji, &c. All these are incomplete, and not taken from the most recent authorities, of some of which (*e. g.* Finsch and Hartlaub's 'Ornithologie Central-Polynesiens') M. Jouan appears to be wholly ignorant.

63. *Pelzeln on Birds from Ecuador.*

[Ueber eine fünfte Sendung von Vögeln aus Ecuador. Von August von Pelzeln. Verh. d. k.k. zool.-botan. Gesell. Wien, 1879, p. 525.]

This is a list of a fifth collection sent from Ecuador by Father L. Sodiro. The 88 skins are referred to 41 species; nearly all are well known. Unfortunately no exact localities are given.

64. *Pelzeln on Birds from Borneo.*

[Ueber eine von Herrn Dr. Breitenstein gemachte Sammlung von Säugethieren und Vögeln aus Borneo. Von August von Pelzeln. Verh. d. k.k. zool.-botan. Gesell. Wien, 1879, p. 527.]

This is an account of a collection of mammals and birds made by Dr. Breitenstein in Southern Borneo near Banjermassing. The *Platysmurus aterrimus* of Sumatra is separated from *P. aterrimus* of Borneo as *P. schlegeli,* sp. nov. The lately described *Polyplectron schleiermacheri* is represented in the collection by a male example in full plumage. Hr. v. Pelzeln gives some remarks on the *Euplocami* of the group of *E. ignitus,* in reference to the recently described *E. sumatranus,* Dubois, of which the Imperial Museum possesses examples, originally received from Leyden. Hr. v. Pelzeln adopts the view that *E. nobilis,* Scl., of Borneo is the true *E. ignitus,* and calls the others *E. sumatranus* (ex Sumatra) and *E. vieilloti* (ex peninsulâ Malayanâ). But it seems now impossible to fix the specific term *ignitus,* which has been applied to all three species, to any one of them, and the name should be rejected altogether.

65. *Ramsay on Birds from New Guinea.*

[Contributions to the Zoology of New Guinea. Parts IV. & V. Remarks on recent Collections made by Mr. Andrew Goldie in the South-east portion of New Guinea and the Louisiades. By E. P. Ramsay, F.L.S. &c. Proc. Linn. Soc. N. S. W. vol. iv. p. 85.]

In this paper Mr. Ramsay gives an account of Mr. Goldie's third collection from Port Moresby and its vicinity. Of birds 24 species are mentioned, 15 of which did not occur in the former collections. None of these are described as new. A list is added of all the species contained in Mr. Goldie's three collections, and a table showing their distribution in the Duke-of-York group, Solomon Islands, and Australia.

66. *Reichenow on Foreign Cage-Birds.*

[Vogelbilder aus fernen Zonen. Atlas der bei uns eingeführten ausländischen Vögel, mit erläuterndem Text. Allen Naturfreunden, insbesondere den Liebhabern ausländischer Stubenvögel und Besuchern zoologischer Gärten, gewidmet von Dr. Ant. Reichenow. Lief. 3-4. Folio. Cassel, 1878–80.]

The third and fourth parts of Dr. Reichenow's work are devoted to the Psittacidæ, of which we have groups of African, Asiatic, American, and Australian species on different plates, very nicely drawn by G. Mützel, and well coloured, but reduced in size.

67. *Sclater's 'Jacamars and Puff-birds.'*

[A Monograph of the Jacamars and Puff-birds, or Families *Galbulidæ* and *Bucconidæ*. By P. L. Sclater, M.A., Ph.D., F.R.S., &c. Parts ii. & iii. 4to. London, 1880. Published for the author by R. H. Porter, 6 Tenterden Street, W.]

The two parts issued since our last notice of this work contain figures of the following species :—

PART II. (January 1880).

Galbula leucogastra.
—— chalcothorax.
Brachygalba lugubris.
—— goeringi.
—— salmoni.
Brachygalba albigularis.
—— melanosterna.
Jacamaralcyon tridactyla.
Galbalcyrhynchus leucotis.
Jacamerops grandis.

Part III. (May 1880).

Bucco collaris.
—— macrorhynchus.
—— dysoni.
—— hyperrhynchus.
—— swainsoni.
Bucco pectoralis.
—— ordi.
—— tectus.
—— subtectus.

68. *Taczanowski on the Birds of Askold Island.*

[Liste des Oiseaux recueillis par M. Jankowski dans l'île Askold (Mantschourie). Par M. Taczanowski. Bull. Soc. Zool. d. France, 1878, p. 133.]

Askold Island lies on the Mantchurian coast, in 42° 30′ N. lat., not far from Wladiwostok. M. Jankowski obtained there representatives of 49 species, mostly summer migrants, amongst which were *Eurystomus orientalis*, *Uragus sanguinolentus*, and *Iungipicus scintilliceps*, Swinhoe. The last-named species is a permanent resident.

69. *Wolf's Visit to the Galapagos.*

[Ein Besuch der Galápagos-Inseln. Von Dr. Theodor Wolf. Sammlung von Vorträgen für das deutsche Volk. Bd. i. Heidelberg, 1879.]

Dr. Wolf's sketch of his visit to the Galapagos in August 1875 contains many interesting details. Of the birds, however, little is said, and Salvin's memoir on the avifauna of the group (Trans. Zool. Soc. ix. p. 447) is evidently unknown to him. At Post-office Bay, in Charles Island, Dr. Wolf met with the Penguin of the Galapagos (*Spheniscus mendiculus*, Sund.), which he considers an unknown species, and gives a description of as new.

XXXVIII.—*Letters, Extracts, Announcements, &c.*

We have received the following letters addressed to the Editors of 'The Ibis:'—

Royal Zoological Museum, Dresden.
April 16, 1880.

Sirs,—My letter on *Streptocitta* (*anteà*, p. 249) contains a misprint or a *lapsus calami* on my part, which I wish to put right. It stands there that the specimens from South Celebes have the *base* of the bill of a deep yellow colour. It must be the *tip* of the bill, otherwise also the following words, "in one specimen not only the first third, but half the bill," would have no meaning.

Yours &c.,

A. B. Meyer.

Royal Zoological Museum, Dresden.
April 17, 1880.

Sirs,—In consequence of your very just criticism of my 'Index' to Reichenbach's ornithological works (*anteà*, p. 243), I became aware—to my regret, too late—that I have made a mistake in the choice of the title to my 'Index.' It ought to have been 'Index zu L. Reichenbach's ornithologischen *Abbildungen*,' instead of "*Werken*."

If I had intended to index also the letterpress of the works in question, I should, of course, also have had to take into consideration those thirty-two pages mentioned by you (p. 244) as an instance of omission on my part; but this not having been my plan, and having been obliged to restrict myself to the titles of the figures, I could not pick out that list or any other part from the whole, however important it might be, or though it might contain specific and generic names which do not occur among those of the figures.

If Reichenbach's letterpress had been also indexed, my book would have swollen to about double its size; and I could not afford to publish more than I did, because I was obliged to print it on my own account. I did not succeed in finding a publisher who would pay the printing-expenses, there being only a very limited number of copies of Reichenbach's works in the hands of the public; hence I shall not get returned half my expenses by the sale of copies.

This was the chief reason for restricting myself to index the titles of the *figures*, which alone amounted to about 20,000; but I confess myself guilty of having provoked your criticism by choosing a wrong title, which ought to have been 'Index zu L. Reichenbach's ornithologischen *Abbildungen.*'

If I could get the expense of the printing covered, I would, perhaps, complete my labour by an index to Reichenbach's *letterpress,* although this is, in my opinion, not so much wanted as was the index given. Besides, the arrangement of such a work would be rather difficult, the various series of sheets, pages, &c. &c. not being sufficiently distinguished by their author.

This leads me to speak of another of your remarks. You had expected from me an exact account of Reichenbach's works, and some indications of how they are best arranged; you consider Reichenbach and his ways quite incomprehensible, and hold the good opinion of myself that I could solve the mystery. *I cannot solve it,* and am in the same position as yourselves, not having found my way through that labyrinth, and not being willing to devote more time to the solution of the problem than I have already done.

Hoping that these reasons will explain to you some of the shortcomings of my 'Index,'

I am, yours, &c.,
A. B. MEYER.

Cormorant-fishing in China.—The subjoined account of the mode in which Cormorants (*Phalacrocorax sinensis**) are used for fishing in China is given in the 'Special Catalogue of the Ningpo Collection in the International Fishery-Exhibition at Berlin':—

"Many are the ways used in this province for catching fish of all kinds in the rivers, lakes, and canals; but none of them are more curious than the Cormorant-fishing, which may be seen everywhere about Ningpo. Certain places are noted for the excellence of the birds which are bred and trained there; amongst these we may name Fênghan and Shaohsing.

"The most celebrated place, however, is a small town called Tanghsichên, 50 *li* north-west of Hangchow, the people of which are currently believed to possess a secret in Cormorant-rearing which gives them special success.

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* [The Cormorant used in China for fishing is stated, as Dr. Peters kindly informs us, to be *Phalacrocorax capillatus* of the 'Fauna Japonica,' which should be called *Ph. sinensis.* It is, perhaps, doubtful whether the species is distinct from *P. carbo* of our seas.—EDD.]

"The Cormorant's book-name is *Lu tzu,* and the common name is *Yu ying* ('fish-hawk') or *Yü ya* ('fish-crow').

"The females lay yearly from three to nine eggs, in the first and eighth moons. The colour of the eggs is green, but it is much covered with white chalk; their size is that of ducks' eggs. The white inside is slightly green, and the eggs are never eaten, on account of their strong flavour.

"The eggs of the first season (first moon) are the only ones retained for hatching. Towards the beginning of the second moon they are given to the hens to hatch, as the female Cormorant is a careless mother. The young break their shell after a month's incubation. When new born they cannot stand on their legs, and are very sensitive to cold. They are therefore taken away from the hen, placed in baskets filled with cotton wool, and kept in a warm place. The eggs of the second season are not used, the weather being too cold; they are given away to children and beggars.

"The young birds are at first fed with a mixture, in equal parts, of beancurd and raw eel's flesh cut fine. If eels are not procurable, the flesh of the *Hei yü* (*Ophiocephalus niger*) is used instead, in the form of small pills. At the end of a month the down begins to be covered by the larger feathers, and the quantity of fish-flesh given to them is increased, while that of beancurd is reduced. A second month elapses, and the young birds, having grown to double their original size, are fit for the market; a male fetches $1 or $2, and a female half as much.

"The birds are now fed with young fish thrown to them. When they have attained their full size, a string is tied to one leg, the other end of it being fastened to the bank of a pond or canal. They are then made to go into the water, the trainer whistling a peculiar call and using a bamboo to force them. Small fish are thrown them, upon which they pounce greedily, as they have been kept on short allowance of food. They are now called back by a different whistle-call, and forced to obey by means of the string; as they reach the shore more fish is given them. This teaching having been gone through daily for a month, another four or five weeks are spent in training the birds from a boat; at the end of this period the string is generally dispensed with. When old and well-trained Cormorants are made to accompany the young ones, the time required in training is reduced one half. Birds not properly trained after all the trouble thus taken are pronounced stupid and not fit for use.

"The teaching being completed, the Cormorants are fed sparingly every morning with fish. A small ring of hemp is tied around their necks to prevent them swallowing large fish, and they are taken on board the small punt called 'Cormorant-boat' to the number of ten or twelve. They are now as docile as dogs, and sit perched on the side of the boat until they are sent into the water by a mere whistle from their master. They dive after fish, and bring their prizes to the boat, firmly held in their hooked beaks. When a fish is too large for one bird, three or more join their forces and capture it together. Sometimes the fisherman signals them to dive by striking the water with a long bamboo. If any Cormorant is inclined to be disobedient, his legs are connected by a short piece of string; this forms a loop, by means of which the bird may at any moment be brought on board, *nolens volens*, with a long bamboo hook.

"After fishing two or three hours the birds are allowed to come on board and rest. At the end of the day the hempen ring is loosened or removed altogether, and they are either allowed to fish for themselves, or are fed by the hand of their master. Seizing the birds one after another by the upper mandible, the fisherman thrusts into their throats a handful of small fish and a ball of beancurd as large as his fist, the ingurgitation of which he helps with the other hand by stroking the neck of the bird, who seems to enjoy it, as he promptly returns for a second supply. The entire scene is most ludicrous. At night the birds are brought home and caged. A Cormorant holds out for five years, at the end of which time these birds lose their feathers and soon after die.

The females, being weaker than the males, only catch small fish, hence their lower value. Very good birds reach a value of Fls. 10 a pair, a well-trained male being worth $6 or $7. The females lay when one year old."

Note on Chrysotis apophænica.—The bird thus lately named by Dr. Reichenow (Orn. Centr. 1880, p. 16) seems to me to be only the female of *C. albifrons*. Dr. Reichenow kindly showed me his type when I was at Berlin last month. There are several similar examples in the collection of Salvin and Godman. One of these was obtained by Salvin himself, along with another in the usual plumage of *C. albifrons*, on the Rio Motagua, Guatemala, February 24th, 1859. These two birds are marked ♂ and ♀, as determined by Salvin himself. There is a second similar pair, as ascertained by dissection, in the same collection from Rio Chiguate, Pacific coast of Guatemala, obtained in December 1861. It would appear therefore that in this species, contrary to the usual case in *Chrysotis*, the sexes are different in plumage. In the nearly allied *C. xantholora* the sexes are also different.—P. L. S.

Death of Mr. Frank of Amsterdam.—The well-known dealer in natural-history objects, Mr. G. A. Frank, who for so many years has supplied many of the principal museums of Europe with choice specimens, died at Amsterdam on the 24th of April last, in the 71st year of his age. His son, Mr. G. A. Frank, who has for some years been settled in London (14 Chalcot Crescent, N.W.), will, we believe, continue to carry on business in this city.

Mr. Forbes's Expedition to Brazil.—Mr. W. A. Forbes, Prosector to the Zoological Society of London and Member of this Union, left England the end of last month for Pernambuco, Brazil, on a three months' collecting-expedition. He will keep principally along the line of the Recife and San-Francisco Railway, which seems likely to offer great facilities for the object he has in view.

Mr. Gould's 'Humming-birds.'—Mr. Gould, we understand, has in contemplation the issue of a supplementary volume to his great work on the Trochilidæ, for which he has long been collecting drawings and materials. The new species discovered since the monograph was completed in 1861 are numerous, and many of them of a most striking character, and will afford ample scope for such a work.

Acquisitions of the British Museum in the Class of Birds in 1879–80[*].

Birds.—The total number of acquisitions amounts to 3312, of which 700 belong to the series from the Indian Museum. Fifty-eight species were entirely new to the collection.

The following accessions may be specially mentioned:—

Twenty-five skins of Willow-Warblers (*Phylloscopus*) from various localities; presented by Henry Seebohm, Esq. Fifty-seven specimens from the collection formed by Dr. Hildebrandt in Eastern Africa, six species being new to the collection; purchased. Three specimens from the Samoan Islands, including the type of *Pinarolestes porrelli* from Tutuila; presented by the Rev. Thomas Porrell, of Upolu, Samoa. Thirty specimens from Betsileo, Madagascar; purchased. Twenty-five specimens from India and Burmah, ten of the species being new to the collection; purchased. The type specimen of *Dromæocercus seebohmi*, a new species of Warbler, and a very rare Owl (*Heliodilus soumagnii*) from Madagascar; purchased. Specimens of a very interesting insular form of Land-Rail (*Rallus gularis*, var.[†]) from the island of Aldabra, discovered and presented by Captain Wharton, of H.M.S. 'Fawn.' Sixty-nine specimens from the neighbourhood of Port Moresby, S.E. New Guinea, collected by Mr. Kendal Broadbent, and containing sixteen species not previously represented in the British Museum, among which are the types of *Aprosmictus broadbenti* and *Pœcilodryas fla-*

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[*] Extracted from the Parliamentary Return "of the Income and Expenditure of the British Museum for the year ended the 31st day of March 1880," &c.

[†] *Cf.* Günther, Ann. & Mag. Nat. Hist. ser. 5, vol. iii. p. 164 (1879).

vicincta; purchased. Nineteen skins of rare birds from New Caledonia and Loyalty Islands, collected by E. L. Layard, Esq., and including the types of eight of the new species described by him and Canon Tristram; purchased. Forty-eight bones of the extinct Goose of New Zealand (*Cnemiornis*); purchased.

The Birds of Socotra.—Examples of about thirty species of birds were obtained by Prof. I. B. Balfour during his recent expedition to Socotra. These will shortly be described in a joint paper by Dr. Hartlaub and Sclater.

Mr. Ober's new Expedition to the Antilles.—Mr. Lawrence kindly informs us that Mr. Ober, the Smithsonian collector, has commenced his new expedition to the Lesser Antilles, with Saba—hitherto, we believe, unexplored by any naturalist. Mr. Ober will be away about six months, and will endeavour to visit all the islands not previously investigated.

The Museum Godeffroy.—We are pleased to hear that negotiations are in progress for the transfer of the Museum Godeffroy to the city of Hamburg. In it are to be found by far the finest series of the zoological and ethnographical products of the Pacific islands yet assembled together, including, we believe, all the types of the new birds described in the thirteen "Hefts" of the 'Journal des Museum Godeffroy.' It would be a great misfortune to science if these were distributed all over the world by the auctioneer's hammer; so that it is much to be hoped that a satisfactory arrangement will be come to between the liquidators of the "Maison Godeffroi" and the citizens of Hamburg.

Eggs of the Great Auk.—Two eggs of the Great Auk (*Alca impennis*), "not previously recorded, discovered in an old private collection in Edinburgh," were recently sold at Stevens's Sale-rooms—one for £105, and the other for £107 2*s*. We are informed that the fortunate purchaser of these oological rarities is a well-known member of this Union. These eggs are believed to have been formerly in one of the Royal Cabinets at Paris, and were probably originally obtained in one of the old French colonies in North America.

Short Notes from New Caledonia.—*Glycyphila satelles*, Tristr. (Ibis, 1879, p. 185), we fear we cannot admit as a valid species. Individuals of *G. chlorophæa* found here and in Lifu vary in size and coloration so very much, according to season and sex, that we cannot, satisfactorily to ourselves, identify more than one species, and we believe that the various names *caledonica*, *modesta*, and *poliotis* of G. R. Gray, *incana*, Latham, and *chlorophæa*, Forster, have been bestowed on individuals of one and the same species; to these must now be added *G. satelles* of Tristram!

Cuculus bronzinus, G. R. Gray, differs from *C. simus*, Peale, from Fiji, in being of a much richer chestnut below, the colour extending up to the bill, whereas in *C. simus* the upper part of the throat and chin are grey. Then the tail in the adult is much less barred, the central feathers showing hardly any trace of bar at all; whereas in *C. simus* the bars extend right across the feathers, and in the central pair the edges show white patches, the bars being elsewhere obsolete. I observe, too, a different gloss on the plumage, *C. bronzinus* being more inclined to green. The young are also less barred throughout.

C. infuscatus, Hartlaub, has been supposed by some to be a phase of plumage of *C. simus*. Nothing like it has ever been found in New Caledonia.—E. L. Layard.

New Birds from Eastern Africa.—Capt. Shelley has just received through Dr. Kirk a valuable collection of birds from Ugogo, amongst which are examples of seven or eight new species, some of great interest. An account of these will be given in our next Number.

Salvadori's Papuan Ornithology[*].—The first part of this large work has been lately published, and can be obtained from the author, or through any bookseller, at the price of 40 francs.

The heavy expense necessary for the publication of the second part, now ready for printing, obliges the author to ask the assistance of his brother ornithologists. All those who wish to have the second part (which, it is hoped, will be followed soon by the third and last part) are requested to send their names to the author, Zoological Museum, Turin. One hundred subscribers will be necessary to enable the work to be proceeded with.

The second part, which will contain the Passeres, represented by nearly 500 species, will form a volume of about 640 pages, printed with the same type and paper as the first. Price 40 francs; payment on delivery.

If it is found convenient, the second part will be published in four numbers, at the price of 10 francs each.

Phylloscopus plumbeitarsus, Swinhoe.—In his very interesting paper on Afghanistan ornithology (*anteà*, p. 59), Lieut. R. G. Wardlaw Ramsay repeats Mr. Seebohm's mistake that the above-named bird is identical with *Phylloscopus viridanus*, Blyth.

The two birds are utterly distinct. They differ as follows:—

1. *P. plumbeitarsus* has *two* wing-bars; *P. viridanus* *always* only *one*.

2. The wing-bar of *P. plumbeitarsus* is abruptly separated from the adjoining greenish colour, while that of *P. viridanus* is shaded off into the adjacent olive-green. I regard this invariable distinction as quite conclusive.

3. *P. viridanus* is a much larger bird, *as a rule, with sometimes half an inch longer wing*! This is conclusive. The tail is also considerably longer.

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[*] 'Ornitologia della Papuasia e delle Molucche' di Tommaso Salvadori, Socio residente della R. Accademia delle Scienze di Torino.

4. *P. plumbeitarsus* has a stouter bill, and, *as a rule*, shorter. This is conclusive.

5. *P. plumbeitarsus* differs in colour, and is a darker-toned bird, especially the head.

6. *P. viridanus* abounds in India, but *P. plumbeitarsus* has not yet been procured in India! It is, however, abundant in Burmah, where *P. viridanus* is not common. This latter consideration quite settles the question in favour of distinctness, even had there not been those of structure and plumage so well marked. Some day or other, I expect, we shall hear of *P. plumbeitarsus* having a very distinct voice. As yet its voice has not been described.—W. Edwin Brooks.

Garrod Memorial.—The friends of the late Professor Alfred Henry Garrod, F.R.S., being desirous of possessing some memorial of him, it has been agreed, after due consideration, that this object will be best effected by the republication in a collected form of all his separate memoirs and papers, both zoological and physiological, prefaced by a biographical notice and portrait of the author. A Committee has been formed to carry out this object, consisting of:—Prof. W. H. Flower, LL.D., F.R.S.; P. L. Sclater, Esq., Ph.D., F.R.S.; Dr. A. Günther, F.R.S.; O. Salvin, Esq., F.R.S.; F. M. Balfour, Esq., F.R.S.; Prof. E. A. Schäfer, F.R.S.; G. E. Dobson, Esq.; E. R. Alston, Esq.; Prof. F. Jeffrey Bell; W. A. Forbes, Esq., *Secretary*.

It is estimated that Professor Garrod's collected papers will form a volume of about 500 pages, royal octavo, illustrated by 25 plates and numerous woodcuts.

Each Subscriber to the Fund will be entitled to receive a copy of the work for every guinea subscribed.

Intending Subscribers are requested to forward their names, and to state the amount they are willing to subscribe, to the Secretary of the Garrod Memorial Fund, 11 Hanover Square, London, W.

List of Ornithological Works in course of Publication and Dates of last Parts issued.

Dresser (H. E.). Birds of Europe	Parts lxxvii.–lxxix. (April 1880).
✓Elliot (D. G.). Monograph of the Bucerotidæ	Part vi. (1878).
Giglioli (E. H.). Iconografia dell' Avifauna Italica	Part iv. (Feb. 1880).
Gould (John). Birds of Asia	Part xxxi. (July 1879).
Gould (John). Birds of New Guinea	Part x. (Sept. 1879).
Graessner. Die Vögel von Mittel-Europa und ihre Eier	Lief. 4 (1880).
✓Legge (W. Vincent). Birds of Ceylon	Part ii. (Sept. 1879).
Maynard (C. J.). Birds of Eastern North America	Part xi. (1879).
✓Meyer (Dr. A. B.). Abbildungen von Vogel-Skeleten	Lief. i. (1879).
Newton (Prof.). Yarrell's History of British Birds	Part xiii. (June 1880).
Reichenow (Dr. Ant.). Vogelbilder aus fernen Zonen	Lief. iv. (1880).
Russ (Dr. Karl). Die fremdländischen Stubenvögel	Band iii. Lief. 7 (1879).
✓Salvadori (T.). Ornitologia della Papuasia e delle Molucche	Parte i. (1880).
✓Sclater (P. L.). Monograph of the Jacamars and Puff-birds	Part iii. (May 1880).
✓Sharpe (R. Bowdler). Layard's Birds of South Africa	Part iv. (April 1877).
✓Shelley (G. E.). Monograph of the Cinnyridæ	Parts xi. & xii. (completed).

Communications deferred and expected.—We have papers from Dr. Finsch, Mr. W. A. Forbes, and Mr. H. Elwes standing over, besides Mr. Durnford's Journal, and an account of the birds of Gilgit by Major John Biddulph. Mr. Layard's description of *Halcyon tristrami* (see above, p. 299) has been received, and will be given in our next number, as also, we hope, Mr. Danford's continuation of his ornithological experiences in Asia Minor, which he has kindly promised to prepare.

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XXXIX.—*Field-notes on the Birds of Denmark.*

By H. J. Elwes.

Though Denmark is within easy reach of England, it seems to have received but little attention from English or foreign ornithologists, and nothing of importance has been written on the birds of the country except by Danish naturalists.

Having three weeks to spare last May, I determined to explore, as far as my time allowed, some part of the country; and, owing to the kindness with which I was received by Pastor F. Theobald and Mr. Alfred Benzon of Copenhagen, both well known as working ornithologists, and the advantage I had in being accompanied by the latter gentleman for the greater part of the time, I was successful in seeing and taking the eggs of several birds which are very rare or do not breed in other parts of Europe.

Leaving Copenhagen on May 6th, I, with Mr. Benzon and his obliging and clever assistant, Mr. Seehusen, arrived at Aalborg, in North Jutland, the same night, and on the following morning drove about fifteen miles to the forest of Dronningslund, where we expected to find the Black Stork and other birds breeding. The country through most of the centre of Jutland is composed of dry barren heaths, interspersed with small lakes or bogs, and for the most part very uninteresting and devoid of bird-life. Wherever the land is good enough, and in many places where it seemed to be nothing better than hungry sand, the heath is broken up and cultivated by peasant proprietors, who, notwithstanding a poor soil and cold climate, seem to make a very comfortable living by agriculture. Rye, alternating with spring corn, and grass-seeds (remaining down two or three years) are the principal crops of the country, which seems as desolate and unattractive to the naturalist as any that can be imagined. Here and there, however, are forests and extensive marshes, which can vie with any in Northern Europe in the number and variety of their feathered occupants; and it is therefore especially necessary to have good local information as to the breeding-places of the birds and a first-rate map, such as Mansa's 'Karte over Norre Jytland,' which shows the exact nature of the country, distinguishing between cultivated land, moor, marsh, and woodland. Thanks to Mr. Benzon and to this excellent map, we never lost a day in unproductive localities; and the first day which I spent in the forest of Dronningslund was one of the most interesting days I ever had. Bird-nesting may be, no doubt, a boyish pursuit; but I must confess that at thirty-four I enjoy it as much as I did at fourteen, and there is no doubt that one learns more of the habits of birds when seeking their nests than at any other time. The forests of Jutland, of which Dronningslund is the most northern of note, are principally composed of beech, though towards the south oak, fir, birch, and other trees are found in them. Plantations of fir are rapidly growing up in many parts of the country; but the beech is the characteristic and prevailing timber, and the only one which attains any great size. In Dronningslund Stor Skov, which is a tract of low hills three or four miles long and about half as wide, the trees are, for the most part, small and stunted, growing on a poor sandy soil, and exposed to the sweeping blasts of the North Sea and the

Baltic. Of underwood there is but little, though in spring the ground beneath the beech is green with a carpet of wood-anemone (*Anemone nemorosa*), wood-sorrel (*Oxalis acetosella*), bilberry (*Vaccinium myrtillus*), *Trientalis europæa*, and other plants, while ling, juniper, and broom occupy the skirts and open places of the wood. All round for miles the country is bare and almost treeless, so that the birds of prey must of necessity congregate during the breeding-season, and being in the forest unharrassed by gamekeepers, are very numerous. After a hospitable reception from the lady who lives here and owns the estate, we made inquiries as to the Black Storks, and were told that, owing to their old nest having been occupied by a pair of Buzzards, which we found had already hatched their young, it was believed that they had not yet laid in the new nest which they had built. Notwithstanding this we went out with the forester, and in a few hours found and took, within a radius of not more than a mile or so from the house, one Kite's nest, containing one egg, two Buzzard's, with two eggs each, two Goshawk's, with three eggs in one nest and four in the other, and a Raven's nest with fully fledged young ones. Owing to the comparatively small size of the trees, and the help of some large screws invented by Mr. Seehusen, which we found most useful, as they afford a safe means of climbing trees which would otherwise be inaccessible, I had no great difficulty in getting up to the Kites' and Goshawks' nests myself, and found that the former was lined with wool and the latter with a leathery lichen which grows abundantly on the trees. The Goshawk arrives in the country about the middle of April, builds or repairs a large nest of sticks on some tree near the outskirts of the forest, laying in it three, four, or rarely five eggs, about the last week in April. The hen birds sit and, unless disturbed once or twice, are not very shy. One I killed as she went off the nest, and another I got by waiting near the tree and shooting her as she swooped over my head, twenty minutes afterwards, on her way back to the nest.

The flight of the Goshawk, though strong and quick, seems laboured and clumsy in comparison with that of the long-winged Hawks, or even with that of the Sparrow-Hawk. I only once saw a male, skimming over the tops of the trees in the early morning, and I do not think he takes a share in the incubation, as I never saw him near the nest at all. Rabbits being unknown here, and Wood-Pigeons scarce, so many Goshawks must have some difficulty in finding food, though, as their Danish name means Hen-Hawk, I presume that poultry forms a large part of it. A third nest which we found had the eggs sucked, apparently by a Marten; and I have no doubt there were more in the forest had we looked for them; as, however, the Black Stork was one of the main objects of my search, we returned to Aalborg on the next day, intending to visit the important forest which lies halfway between Hobro and Aalborg, and which is known under the names of Rold Skov, Thorsted lund, and Mylenberg. This is probably the largest tract of woodland in all Denmark, being eight or ten miles long by four wide, and contains, or has contained, an enormous number of Kites, Buzzards, and Goshawks, besides being the regular breeding-place of four or five pairs of Black Storks, one or two pairs of *Haliaetus albicilla, Bubo maximus,* and other rarities. Birds of prey being trapped and shot here, have decreased of late years; but the Storks, being unmolested, are still fairly numerous, though, owing to the limited number of breeding-places, there are perhaps not more than ten or twelve pairs in all Jutland.

Mr. Benzon, having obtained letters to the royal and private foresters who have charge of these domains, we were shown, in the course of the two following days, no less than three nests of *Ciconia nigra,* which is a bird of totally different habits from his white cousin, *C. alba,* and seems to shun the haunts of men just as much as the Common Stork courts them.

Escorted by the chief Royal Forester, who was like a jovial old-fashioned English squire in appearance and manner, mounted on an ambling Iceland pony, and armed with a pipe of enormous dimensions, we drove off from the station of Skorping in an open carriage, accompanied by an imposing band of foresters and keepers, and in a very short time arrived at the first nest, which was built on a good-sized beech tree in a dense wood. Having obtained permission, as a great favour, to shoot one bird, I crept up to the nest and saw the pair together, the female sitting and the male standing by her side. They allowed me to come within twenty yards before going off, when I easily bagged the male, hoping that the hen would soon obtain another mate. After sailing round a few times above the nest, the female disappeared and was seen no more. The nest was about thirty-five feet from the ground, a large and heavy mass of sticks four feet in diameter, and lined with tufts of green moss, so as to form a shallow depression about two feet across. The eggs, which are large and white, were four in number, and had been incubated for about a week.

Another nest was in a tree about 200 yards off, and is sometimes used by the same pair of birds, which appear to return to the same spots for many successive years. This season, however, it was tenanted by Buzzards, which we did not disturb.

The other two nests which I visited in this forest were very similar in size and structure, one of them being an old nest of the White-tailed Eagle about thirty feet from the ground, in a small beech tree overlooking a wide marshy valley in the forest, and containing three eggs. The other was not more than eighteen feet from the ground, in a large stunted beech, situated in a dense forest on a low ridge between two small peat-bogs. In all cases the birds allowed me to come close before flying off, and after sailing round several times disappeared; and though I waited for some time at one of the nests, the bird did not return or show herself again.

In the mornings and in fine weather the Black Stork has the same habit of sailing round and round high in the air as the White Stork, but I never saw them feeding anywhere near their nests. I believe that they go a considerable distance in search of food. They arrive from the south in April, lay about the last week in that month, and leave the country with their young in early autumn.

Not far from the first Black Stork's nest was an eyrie of *Haliaetus albicilla* on a very large beech tree, which the forester did not seem to wish us to disturb, and the tree being an exceedingly difficult one, we were the less unwilling to leave it. Though *Bubo maximus* had recently been seen and heard, the nest could not be found; it is said to be sometimes on the ground under a bush, and sometimes an old Buzzard or Goshawk's nest is used. *Pandion haliaetus* formerly bred in this forest, and also, as I am told, in other parts of Jutland; but the only place where it now breeds in Denmark, as Mr. Benzon informs me, is in the sound between the islands of Laaland and Falster, and where only one or two pairs are left.

Aquila nævia does not appear to be a regular visitor to Denmark, as might be expected from its comparative abundance in Pomerania, but it is said to have bred more than once on the island of Laaland.

Of other Raptorial birds I saw but few in Jutland. Harriers are not so numerous as would be expected, and *Circus cineraceus* does not, Mr. Benzon thinks, breed in Denmark at all, though it does so regularly near Bremen, as I was informed by Dr. Hartlaub. *Pernis apivorus* is rare in Zealand and the south of Denmark, and *Falco peregrinus* is also rare. Among the Owls *Athene noctua* is fairly common, breeding in churches near Viborg and elsewhere. I saw *Otus brachyotus* once, and *Syrnium aluco* is also found in many places.

After leaving Aalborg I stayed two days at Viborg, where Dr. Heiberg has a nice collection of birds and eggs, mostly procured near Thisted, in North-west Jutland, where, in the lakes near the coast, are found large colonies of *Sterna anglica, S. cantiaca*, Laridæ, and other birds. He informs me that *Podiceps auritus* breeds commonly near Thisted, and was good enough to give me some eggs. *Anas ferina* also breeds in some numbers on a lake, now partially drained, called Sjorring-sö, near Thisted. The Avocet still frequents some parts of the Great Lim fjord, which traverses the whole breadth of North Jutland, and opens out into wide lake-like expanses of water in its western part. Draining and embanking is being carried on to such an extent in the western part of Jutland, that many of the favourite breeding-grounds of marsh- and water-birds are being destroyed; and I was told that the workmen employed on these operations sometimes almost lived on the eggs of Gulls, Terns, Avocets, and other birds.

After leaving Viborg we proceeded to a place called Tarm, near the south end of the Ringkoping fjord, and situated in the midst of an extensive tract of marshes. This had been constantly spoken of by Mr. Benzon as the source of many of his oological treasures, and as one of the finest places for a collector in Denmark. Here we were joined by Mr. Seebohm, who had been detained at Berlin, and we lost no time in exploring the country. Tarm is a small village, possessing a very tidy inn and a station on the railway, which runs all round the west coast of Jutland. It is about four miles from the debouchure of a fair-sized river into the Ringkoping fjord, and is at the head of a flat delta-like marsh of several thousand acres in extent. This marsh is, in summer, grazed by cattle, and is, for the most part, sound land intersected by ditches and interspersed with rushy pools and shallow marshes. It appeared to us a paradise for wading birds, though, on account of its extent, they did not seem so numerous as they would have done in a smaller marsh. The great object of our search was *Scolopax major*, which breeds here in considerable numbers, at, perhaps, the most southerly locality in Europe for its nesting.

Though the birds were tolerably numerous, it was soon evident that we were too early, and, though Mr. Benzon has received eggs in former years taken on the 9th of May, their usual time for laying here is not much before the last week in May, whilst, according to Mr. Godman (Ibis, 1861, p. 87), it does not breed at Bodö till towards the end of June. So, at least, we were told by the local collector from whom most of Mr. Benzon's eggs were procured; and though we searched diligently, and one bird which I shot had a large egg inside her, we could find no nest. At first Mr. Seebohm thought that there might be some doubt as to whether the birds we saw were not merely on migration to the north, and some of them possibly might have left the place later, as they do not arrive in the north of Norway and Russia before June. But the large series of unquestionable Great Snipe's eggs taken here by Mr. Benzon's collector, and the positive assurance of several residents, who could have no reason for deceiving us, and who had frequently shot the young birds in June and July, make the matter beyond a doubt, though I fear that their numbers are constantly decreasing, owing to shooting and egging, which, though prohibited by law, seems to go on much the same here as elsewhere.

Besides *Scolopax major* we saw one or two Common Snipes, and numerous parties of Ruffs, Godwits (*Limosa melanura*), Redshanks (*Totanus calidris*), Wood-Sandpipers (*T. glareola*), Dunlins (*Tringa alpina*), all of which were breeding in considerable numbers. *Machetes pugnax* had hardly began to lay as yet; and the Godwit, by the frantic way in which they screamed over our heads in certain places, seemed to have young, though one nest of fresh eggs was found by Seebohm. Herons, Bitterns, and Harriers were, however, absent or very rare in the neighbourhood, and of Grebes, Rails, Coots, or Moorhens we saw neither birds nor eggs. Their absence was compensated for by Ducks, of which the Shoveller (*Anas clypeata*), Garganey (*A. circia*), and Wild Duck (*A. boscas*) were sitting on their nests in the flat grassy pastures of the marsh. The Shovellers, of whose nests we found four or five, were, in some cases, near hatching, and lay ten or twelve eggs in a nest well lined with down. The Garganey, whose eggs were brought to us, has a very dark-coloured down, easily distinguished from that of the Teal by its white tips. The Pintail also breeds near here; but I neither saw nor heard any thing of *A. strepera*, *A. nyroca*, or *A. cristata*, none of which has been found breeding in Denmark, as Mr. Benzon thinks. *Totanus glottis* and *T. ochropus*, which might fairly be expected here, are also absent, and have not been identified as breeding in Jutland, though the latter certainly does so, both north and south of it. Of small birds, *Budytes flavus* was very numerous in the marsh, *Alauda arvensis* and *Emberiza miliaria* on the cultivated land round it. I also saw at least one specimen of *Alauda cristata*; but Sylviidæ, as yet, were few and of common species.

After spending three or four days near Tarm, on one of which we descended the river to the fiord, and saw numerous traces of Wild Geese and a dead *Anser segetum*, eaten by a Hawk, we determined to visit a peninsula which goes by the name of "Tipperne," and which projects some miles into the south part of the fiord from a place about ten miles west of Tarm. Starting early in a carriage on May 15, we passed through a flat sandy country, thickly populated and cultivated almost everywhere. Small flocks of Dotterels (*Charadrius morinellus*) had stayed to rest here on migration, and, being easily shot, made a welcome addition to our dinner.

On reaching the fiord, which is at its lower end very shallow and tideless, we drove over a mile or two of hard mud and sand, often covered by water, on which an immense flock of Dunlins were feeding, probably intending to breed in more northern regions. A remarkable mirage, which prevails in these flat coasts, made it difficult to see any thing at a distance; but an immense flock of Geese rose as we approached the place where they were resting on the sand.

Soon reaching the so-called "Tipperne," we found ourselves on a perfectly flat and extensive tract of land, covered with short grass, and intersected by pools, much resembling what are called "saltings" on the Norfolk and Essex coast, but free from the numerous small winding muddy creeks and watercourses formed by the tide which characterize a genuine "salting." This promontory, of some thousand acres in extent, is surrounded by the shallow waters of the fiord, and is uninhabited, except for a few weeks in the summer, when cattle come here to graze. It is the last great breeding-place of the Avocet in Denmark, and our hope of seeing them was the principal object of the excursion. Doubts were expressed as to whether they had already laid, and the only guide we could obtain either knew or could tell very little about them. After searching some time and seeing only abundance of Redshanks, Ruffs, Terns, Gulls, &c., we came across some fishermen who were shooting Wild Geese, and had with them a fine specimen of *Anser brachyrhynchus*, of which, at any rate, some part of the flock we saw was composed. Soon after I espied a Duck sitting on her nest in a perfectly bare spot near the shore, and found it was a Pintail, whose nine eggs were very much incubated.

Some Redshanks' nests, with snares in them, made us suspect the presence of "detrimentals" in the country; and after searching all over the "Tipperne" without seeing any Avocets, we began to fear a failure. A pair of Ring-Ouzels were hanging about the little hut where we lunched on various Danish luxuries, and a brood of young Ring-Plovers, whose quaint appearance is so well shown in Mr. Gould's 'Birds of Great Britain,' ran about amongst the stones. The flocks of Geese, disturbed by our party, collected together until they appeared to number thousands, the whole of the island showing traces of their constant presence. Not an Avocet appeared, until a boy with us spied something fluttering on a small outlying islet, separated only by a foot of mud and reeds from the main island. Rushing through the water towards it, we were delighted to find an Avocet snared on her nest, which contained four eggs, and at a few yards distance from it, on the same bare islet, without the least cover or attempt at concealment, other nests, containing four eggs each, except one, which had five. All of these nests had horsehair snares set in them, so it was extremely lucky that we had arrived in time, as on the morrow, no doubt, the eggs would have been gone. Whether this is a common practice, I cannot say; but it is evident that, unless stopped, Avocets will soon become exterminated, even in Denmark, as they are in Norfolk, and perhaps also in Holland.

A single bird flew screaming over our heads for a moment, and wishing to see something more of them, I lay down behind a sand-hill at a short distance and watched with my telescope. In half an hour first one and then another of these most elegant birds appeared, flying with a rather short quick and Duck-like beat of the wings, chasing the Gulls which came near the place and settled near their nests.

They seemed uneasy, and stood or ran about in a rather stooping attitude, looking for their eggs. After a time they flew off towards the shallow water, and seemed to settle in it like Ducks, though, owing to the wind, I could not certainly see whether they were swimming or wading. On our way back to the mainland we were delighted to see a flock of probably not less than 100 Avocets wading on the mud-flats in about four inches of water. They appeared rather wild, and when approached went off together. Probably these belong to another and larger colony breeding somewhere near. Let us hope that they may escape the snares and live to delight the eyes of other naturalists.

We returned to Tarm by another road, passing for some way through the great belt of sand-hills which border the west coast of Jutland in many places, and which for some months in the year 1863 afforded a congenial home and a breeding-place to *Syrrhaptes paradoxus* (see Ibis, 1864, p. 195). I did not meet with the gunners who snared them and took their eggs; and when one is unable to speak the language, there is always much difficulty in getting trustworthy information; but the large extent of willow and broom-covered sand-hills, and the admirable feeding-ground in the neighbourhood, seemed all that could be desired for the permanent acclimatization of *Syrrhaptes* if its migratory instincts had not been so strong.

It was very late before we got back to Tarm, and as we could not spare time to wait until the Great Snipes had laid, we left on the 18th for Copenhagen, where Mr. Benzon had returned two days previously. The next day he took us to see the Thiergarten, a large and beautiful wooded park, about five or six miles north of Copenhagen, where, notwithstanding the number of excursionists who daily visit it in summer, many birds breed. Among those which I saw or heard were Ravens, Buzzards (one nearly white) Hooded Crows (which we had not observed in Jutland), *Picus major* and *P. medius* (both of which breed here, the latter being the commonest), *Sitta uralensis, Certhia familiaris, Parus major, P. palustris, P. cæruleus,* and *Muscicapa atricapilla,* which, though very numerous, had hardly began breeding, a single nest with two eggs being all we found. *Picus viridis* and *P. minor* are both somewhat rare in Denmark, and *P. martius* is not known to breed in the country. *Picus medius* seems here, as I have observed in Turkey, to prefer the neighbourhood of swampy places wooded with alder, in the trunks or branches of which tree its nest-holes, somewhat smaller than those of *P. major*, are made. A hole was pointed out to us by Mr. Benzon from which last year he had procured three successive clutches of eggs, numbering, I think, twenty-one in all.

Philomela major is here not uncommon, breeding every year in much such spots as the Common Nightingale selects; but it was too soon to hear them now, so I had no opportunity of comparing the song with that of our Nightingale.

The next day we visited a marsh called Suborg-sö, about five miles from Copenhagen, where is a large colony of *Larus ridibundus*, and where *Podiceps rubricollis* breeds abundantly. The nest and eggs of this Grebe are nearly as large as those of *P. cristatus*, and resemble them in every respect except size; three seemed to be the usual number of eggs laid, but there were four in two nests. It seems to be the case in Denmark that though four species of Grebe breed in the country, they do not frequent the same pieces of water, as I never saw two species together.

On Suborg-sö we were also fortunate enough to find a pair of *Circus æruginosus* breeding, and after some search discovered the nest, though I was nearly anticipated by a Crow in getting the eggs. The nest was placed on a tussock in a very wet spot, so that it could not be approached without a boat, and contained six eggs of the usual type.

Black Terns were also abundant here, but had not yet laid, and four or five nests of Mallard were close together on a little island where we lunched.

Near Copenhagen we heard of a breeding-place of the Turnstone on the island of Saltholm, where several pairs are found; but on the island of Lesso, in the Cattegat, it is said to be extremely numerous. We did not visit either of these islands for want of time, and left Copenhagen on the 21st, *viâ* Hamburg and Bremen, arriving at Amsterdam on the 24th.

Here we lost no time in visiting the breeding-place of the Spoonbill, described by Mr. Sclater in 'The Ibis' for 1877, p. 412; but as, owing to the unusual dryness of the season, the earlier period at which we visited the place, and the different route by which we came, we were able to see more of the locality than he did, I add some details to his account. The Horster Meer is by far the most extensive tract of swamp which I have seen in Holland or in any part of Europe, except on the Danube and in Turkey, and probably is one of the few places in North-western Europe which is thoroughly adapted for the breeding of such birds as the Spoonbill. Most of the so-called marshes are merely tracts of low-lying pasture-land, more or less overgrown with reeds, but intersected with ditches, and dry enough in summer to be pastured by cattle.

The Horster Meer, or rather the chain of lakes and swamps which follow the course of the Vecht from the Zuyder Zee nearly to Utrecht, are, however, very different, consisting of shallow lakes surrounded by high reed-beds, or by quaking bog overgrown with willows, dwarf alder, and many kinds of bog-plants, among which the marsh-fern (*Aspidium thelypteris*) is very abundant. We crossed this tract of land in two places, one by the railway near the Zuyder Zee, and again several miles further up, opposite to Overmeer; and I certainly never saw a finer-looking place for all kinds of swamp-loving birds, and especially Warblers. Owing, however, to the very high wind, and the ignorance of the men who took us to the breeding-place, we had no chance of seeing or hearing what this ornithological paradise contained, though I was assured that *Panurus biarmicus* was not uncommon, and that its nests could be found on a calmer day. The Spoonbills seemed to have decreased in number since 1877, and we were told that this season not more than half the usual number had arrived. Whether this is caused by the constant taking of the eggs, or by some climatic influence, I cannot say, as birds often seem to suffer more from seasons of excessive drought, wet, or cold than from all the persecution of man; but in the spot which we visited there were not more than from sixty to seventy pairs, or, as Mr. Seebohm thinks, a hundred. These were all breeding close together, in a spot surrounded and concealed by willows and alders, so that we had some trouble to find it, being only guided by the flight of the birds and the smell. Some of the nests were placed on alder bushes, as much as three or four feet above the marsh, but the majority of them were on the ground. The eggs numbered one or two in each, and several were dropped about outside and beneath the nests. There were also one or two nests at a little distance from the main breeding-place; but the birds seemed thoroughly gregarious in their habits, and kept together in a flock soaring overhead or at a little distance to leeward as long as we were on the ground. One Heron's nest was on a low willow tree near the Spoonbills, which may have belonged to a Purple Heron, as I saw that bird in the vicinity, and none of *Ardea cinerea*, which by this time would have large young ones; neither have I ever seen the Common Heron breed on bushes when large trees were in the immediate neighbourhood. After leaving the Spoonbills we visited the many breeding-places of the Cormorants, at a distance of 300 or 400 yards, where we found about 200 to 300 nests packed together as closely as possible, and occupying, as nearly as we could estimate, about one square yard each. They were of various heights, some a mere platform of sticks on the ground, and others at least two or three feet in height. The whole of the vegetation on and around this spot was trodden down and killed by the copious droppings of the Cormorants, which covered the entire spot with a white deposit. The eggs, which were one or two in number, seemed to average much smaller in size, and to have less of the chalky substance on the shell, than is the case in Scotland or England.

Though accompanied by a gentleman from the Zoological Gardens at Amsterdam, who, through the Director's kindness, was good enough to act as our guide on this occasion, we were unable to ascertain any particulars about the habits of the Spoonbill, as Heer van Dyk, the former lessee of the Horster Meer is dead, and the present occupant was absent; but I would suggest to any ornithologist who may be in Holland in May or June that a week might be profitably spent in exploring the neighbourhood, where Bitterns, Savi's Warbler, and other rarities will probably be found breeding.

On our way home we spent a couple of days at Valkenswaard, a locality which, though formerly very rich in birds, seems to have recently deteriorated, owing to the numerous collectors who have been there. The only nest of special interest we procured was that of a Redstart, containing a Cuckoo's egg of unusual size and of exactly the same colour as that of the Redstart. Had it not been so much incubated that the foot of the young Cuckoo was plainly to be distinguished, the bird being alive, I could hardly have believed the egg to be genuine. Several similar eggs are in the collection of Herr Pralle, of Hanover, as Mr. Seebohm informs me, of which four were laid in one season, in the same locality, and all in Redstart's nests. The fact that the Cuckoo does lay blue eggs can therefore be no longer disputed; and it is probably the case (as Dr. Baldamus asserts, see Ibis, 1865, p. 178 *et seq.*) that the same Cuckoo lays eggs of a similar colour.

In concluding these hasty notes, I must express my hearty thanks to Mr. Benzon for the great kindness he showed us during our stay in Denmark, and a hope that he may shortly be induced to publish a paper in 'The Ibis' on the birds of Denmark, which, as a record of many years' experience, would be of permanent value to ornithologists.

XL.—*Remarks on the present State of the Systema Avium.*

By P. L. Sclater.

[Concluded from p. 350.]

4. COCCYGES.

The remaining families of Nitzsch's Picariæ (*i. e.* the Coccygomorphæ of Huxley) stand associated together in our 'Nomenclator' under the name Coccyges, given to them by Sundevall in 1835 (K. Vet.-Ac. Handl. 1835, p. 69), and are divided according to the structure of their feet nearly after the plan suggested by Prof. Huxley (P. Z. S. 1867, p. 466). I fear, however, that this is not likely to be a permanent arrangement. Although we may not at once go to the length of following Prof. Garrod in separating the whole class of Birds into "Homalogonatæ" and "Anomalogonatæ," there can, I think, be no question that some weight must, in future, be allowed to the presence or absence of the ambiens muscle, and that it must be allowed that the Cuculidæ and Musophagidæ, in possessing this character and in other respects, stand *per se* among the Picariæ of Nitzsch, and show much affinity with the Gallinæ. I believe therefore that it will be better for the future to restrict the term Coccyges to these two families. The question then is, what shall we do with the remaining groups of the order? The arrangement of them by the structure of the feet, according to Prof. Huxley's scheme, although very simple, is not quite natural. *Leptosoma*, for instance (as I believe I first showed in 1865[*]), although the outer toe is more or less reversed, must certainly come near the Rollers (Coraciidæ); and *Colius* would now appear to be nearly related to the same group[†], although its foot-structure is by no means similar. There seem in fact to be several different categories combined in the order Coccyges thus considered. First we have the Lipoglossæ of Nitzsch, consisting of the four families Alcedinidæ, Bucerotidæ, Upupidæ, and Irrisoridæ[‡]. These all belong to the Piciformes of Garrod[§], and all the best authorities are pretty well agreed as to their consanguinity. Along with these must come the Cuculinæ calopteræ or Todidæ of Nitzsch, containing also four families, which, to my mind, are also closely related—namely the

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[*] P. Z. S. 1865, p. 682. Mr. Sharpe, in making the Leptosominæ merely a subfamily of Coraciidæ (Ibis, 1871, p. 285), appears to have entirely overlooked the structure of the feet.

[†] *Cf.* Garrod, P. Z. S. 1876, p. 416.

[‡] Pterylography, p. 102.

[§] P. Z. S. 1874, p. 117.

Meropidæ, Coraciidæ, Momotidæ, and Todidæ. The two last-named groups are united by Garrod into one family*. They all four have twelve tail-feathers, a naked oil-gland, and cæca. But to these must be added, as aberrant appendages (which sadly mar the uniformity of the group), the Leptosomidæ and Podargidæ and, as it would appear from Prof. Garrod's researches, the Coliidæ. *Leptosoma,* as stated above, is clearly more allied to the Rollers than to any other form. *Podargus* cannot be left with the Caprimulgidæ, looking to the conformation of its palatal bones†, and comes in best here, whereas *Nyctibius* belongs truly to the Caprimulgidæ‡. After Garrod's exhaustive disquisition on *Steatornis*§, we can no longer complain that its structure is unknown; but it becomes still more difficult, owing to its numerous peculiarities, to arrange this most extraordinary bird in a satisfactory place in the series. It must certainly be either put in here or placed as a separate order next to the Striges. Perhaps the former plan is for the present the most convenient.

With these additions the Anisodactylæ, as we have called them in our 'Nomenclator,' will consist of the following twelve families:—

1. Coliidæ.
2. Alcedinidæ.
3. Bucerotidæ.
4. Upupidæ.
5. Irrisoridæ.
6. Meropidæ.
7. Momotidæ.
8. Todidæ.
9. Coraciidæ.
10. Leptosomidæ.
11. Podargidæ.
12. Steatornithidæ.

The Heterodactylæ, which follow next in the 'Nomenclator,' consist of the single family Trogonidæ, the only form of the whole class of birds in which the fourth or outer digit is reversed instead of the second. The pterylosis of *Trogon* is also quite different from that of the other Zygodactylæ, being purely Passerine, except as regards its long aftershaft ||.

The true Zygodactylæ in the 'Nomenclator' consist of four families besides the Cuckoos, namely the Galbulidæ,

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* See P. Z. S. 1870, p. 101.

† Huxley, P. Z. S. 1867, p. 445.

‡ Huxley, *l. c.* p. 454.

§ P. Z. S. 1873, p. 526.

|| Nitzsch, Pterylogr. p. 93.

Bucconidæ, Rhamphastidæ, and Capitonidæ. To these must be added the Indicatoridæ, which do not occur in the New World. *Indicator* has now been conclusively shown to have nothing to do with either the Cuckoos (as supposed by the older authors) or with the Woodpeckers (as believed by Blyth*), but must form a family of itself, allied to the Capitonidæ†.

Lastly, I would now propose to place together in one group, under the restricted title of "Coccyges," the two families Cuculidæ and Musophagidæ. I am not yet prepared to remove them to the neighbourhood of the Gallinæ altogether, but (as above stated) am ready to allow that Prof. Garrod has shown good reasons for separating them from the rest of the Zygodactylæ.

Moreover, on the whole, I have come to the conclusion that, looking to the successful assaults that have been made on Prof. Huxley's views as to the nature of the palate in the Pici and in the Trochilidæ, it will be a better arrangement to sink the Pici and Cypseli to the rank of suborders and to revive the term Picariæ for the whole of the three groups denominated in the 'Nomenclator' Pici, Cypseli, and Coccyges. The Order Picariæ may then be divided into the following six suborders:—

	Families.		Families.
1. Pici	2	4. Heterodactylæ ..	1
2. Cypseli	2	5. Zygodactylæ	5
3. Anisodactylæ	12	6. Coccyges........	2

The Picariæ thus considered embrace altogether about 1600 species of birds referable, as shown above, to twenty-four families.

5. PSITTACI.

The Parrots (*Psittaci*), annexed by Cuvier and his disciples to the Zygodactylæ, are now generally allowed to form one of the primary divisions of the Carinatæ, as was first, I believe, suggested by Nitzsch in 1829*. The affinities of this ancient group to other orders appear to be somewhat remote, but their most natural position seems to be between the Picariæ and the Accipitres. The best mode of subdividing this order has long been a matter of discussion, Dr. Finsch's mode of grouping, as well as those adopted by previous writers, being not very satisfactory. But a flood of light has been thrown upon this subject by Garrod's excellent memoir on the anatomy of the Psittacidæ†, and I think we may safely base our arrangement upon the results of his observations. This, indeed, I have already done in the last edition of the 'List of Vertebrated Animals living in the Zoological Society's Gardens' (1879), where I have arranged the Psittaci upon the following plan, of which the details are taken from Garrod's investigations:—

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* J. A. S. B. xi. p. 167 (1842).

† *Cf.* Sclater, Ibis, 1870, p. 176. For the species of *Indicator* consult Sharpe in Rowley's Orn. Misc. i. p. 192, and P. Z. S. 1878, p. 793.

- A. Left carotid normal.
  - A′. Orbital ring complete .... 1. *Cacatuidæ.*
  - B′. Orbital ring incomplete.
    - A″. Sternal keel aborted ...... 2. *Stringopidæ.*
    - B″. Sternal keel developed .... 3. *Palæornithidæ.*
- B. Left carotid superficial .... 4. *Psittacidæ.*

All the New-World Parrots belong to the last family.

6. STRIGES.

That the Owls, with so many peculiarities in their organization‡, should constitute an order separate from the Accipitres I think there is little doubt. There is no known intermediate form, unless it may be said that *Pandion* approximates rather to the Striges in the absence of the aftershaft. In a previous paper in this Journal§ I have given my reasons for dividing them into two families (Strigidæ and Asionidæ), which Prof. Newton || and Mr. Sharpe¶ likewise agree to.

7. ACCIPITRES.

The Accipitres, which follow naturally next to the Striges,

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* Obs. de Avium art. carotide communi.

† P. Z. S. 1874, p. 586.

‡ *Cf.* Nitzsch, Pterylogr. p. 67.

§ Ibis, 1879, p. 351.

|| Newton's Yarrell, i. p. 148.

¶ Cat. Birds, ii. p. 289.

are primarily divisible, as shown by Prof. Huxley*, into three families, which I have termed Falconidæ, Cathartidæ, and Serpentariidæ. Garrod goes much further than Prof. Huxley in distinguishing the two latter groups from the former†. The Cathartidæ he holds to be much more nearly allied to the Storks than to the Falconidæ, and *Serpentarius* (sive *Gypogeranus*) he places, along with *Cariama*, among the Bustards. These two forms come in therefore in quite different parts of his "Systema." I confess I am not quite able to go so far as this, though I freely allow that the Cathartidæ (as already pointed out by Nitzsch, Pterylogr. p. 50) are in many respects very different from the rest of the Accipitres, and that the resemblance of *Serpentarius* and *Cariama* is most remarkable. But on the latter point Burmeister‡, no mean authority, has come to quite an opposite conclusion to Garrod. At any rate I see no justification for the course Mr. Sharpe has adopted (without stating any reasons) of placing *Cariama* among the Accipitres, still less for treating it as merely a genus of the subfamily Polyborinæ!

8. STEGANOPODES.

Although it is very easy to point out the defects in the arrangement of the remaining orders of birds (the Gallinæ, Grallatores, and Natatores) adopted by Cuvier and his disciples, it is by no means easy to suggest a better one. Let us first consider some of the weak points of the ordinary system. In the first place it is evident that the "*digiti palmati*," by which the Natatores are ordinarily characterized §, is a very slight and superficial character, and one of which no trace is to be found in the osteology. No one will now-a-days deny that the Gulls (*Gaviæ*), though their feet are webbed, are so intimately allied to the Waders (*Limicolæ*) that it is most unnatural to put the two groups far apart.

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* P. Z. S. 1867, p. 462. † Ibid. 1874, p. 117.

‡ "Beiträge z. Naturgeschichte des Seriema," Abh. nat. Ges. z. Halle, i. p. 11.

§ Even by Sundevall, who says "Nullo alio charactere opus est!" (Tentamen, p. 134).

Again, to divorce the Flamingoes from the Herons simply because of their webbed feet, seems by no means satisfactory. Nor is it easy to find any point of resemblance between the true Anseres and other Natatores, except the one single character of palmatipedism. Under these impressions I have thought it better to follow Prof. Huxley's plan of associating together the three great groups of Grallatores and Natatores that resemble the Accipitres in the formation of the palate. It appears to me that the great "Gallino-gralline" series runs off much more smoothly when these excrescences are removed, and that at the same time the three Desmognathous groups, even leaving the palatal conformation out of consideration, show much affinity *inter se*.

Acting on these ideas I placed the Steganopodes, Herodiones, and Anseres in the 'Nomenclator' immediately after the Accipitres, putting the Steganopodes first, amongst which the Fregatidæ show some sort of (at least superficial) resemblance to the birds of prey. I divided them into the following five families, which may, I think, be readily diagnosed:—

1. Fregatidæ.
2. Phaethontidæ.
3. Pelecanidæ.
4. Phalacrocoracidæ.
5. Plotidæ.

9. HERODIONES.

The Herodiones (Pelargomorphæ of Huxley) come very naturally, I think, between the Pelicans and the Ducks. In the 'Nomenclator' they are divided into four families—Ardeidæ, Ciconiidæ, Plataleidæ, and Phœnicopteridæ. I have, however, lately come to the conclusion that the last-named group should not be included in the Herodiones, although, as Nitzsch has told us, the pterylosis is completely Stork-like, and occupies a middle place between *Ciconia* and *Tantalus*. Prof. Huxley says "the genus *Phœnicopterus* is so completely intermixed between the Anserine birds on the one side and the Storks and Herons on the other, that it can be ranged with neither of these groups, but must stand as a division by itself." In this opinion I am not quite disposed to agree, and propose to use Nitzsch's appropriate term "Odontoglossæ" to designate the order.

The family Plataleidæ, I may here remark, should include the Spoonbills and Ibises, as Nitzsch, who first constituted the group under the title Hemiglottides*, has shown. It is a common but very obvious error, well exposed by Garrod†, to unite the Ibises with *Tantalus*. But *Tantalus* is a true Stork, and has nothing to do with *Ibis*. The Plataleidæ differ from all the other Herodiones in being "schizorhinal"‡, in which respect they deviate towards the Limicolæ. But their pterylosis is that of the Storks, "even to the smallest details"§.

10. ANSERES.

The Anseres, if considered as limited to the single family Anatidæ, constitute a rather isolated group which can be very easily defined. Following Parker‖ and Huxley¶ in the 'Nomenclator' I associated the Palamedeidæ with the Anseres. But after the recent investigation of Prof. Garrod** it would seem impossible to deny that the peculiarities of this group are such as to necessitate their recognition as a separate order, which I propose to call Palamedeæ. Nitzsch has long ago shown that the pterylosis of *Palamedea* is abnormal in showing scarcely any appearances of spaces between the feather-tracts (Pterylogr. pp. 16, 121); but in the Anatidæ, also, the spaces are very narrow.

The best position for the Palamedeæ appears to me to be just before the Anseres, which I commence with the genus *Anseranas*††.

11. COLUMBÆ.

We now enter upon the great Schizognathous series of Prof. Huxley, which, I think it must be allowed, runs on much more smoothly after the removal of the five preceding groups. The Columbæ are Passerine in many respects (especially as regards the state in which the young are excluded from the egg, which has caused Sundevall to place them at the end of his division Psilopædes[*]), and, no doubt, belong to a new line of departure from the Passeres towards the Gallinæ. It is very hard to have to mar the symmetry of the Columbine group by adding to it the Pteroclidæ. Yet there can be no doubt that in most respects the Sand-Grouse are more truly Pigeons than Grouse, and that the only way to escape from the dilemma is to recognize the Pterocletes as a separate order, as Prof. Huxley has proposed to do[†], intermediate between the Columbæ and Gallinæ.

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* Pterylography, p. 133 (Engl. tr.).

† P. Z. S. 1875, p. 301.

‡ Garrod, P. Z. S. 1873, p. 37.

§ Nitzsch, Pterylogr. p. 133.

‖ P. Z. S. 1863, p. 511.

¶ P. Z. S. 1867, p. 460.

** P. Z. S. 1876, p. 189.

†† See P. Z. S. 1880, p. 497.

As regards the divisions of the Columbæ into families I have recognized two in the last edition of the 'List of Animals'—Carpophagidæ and Columbidæ. To these should have been added a third (Gouridæ) for the Crown Pigeons, in which the tarsi have a very peculiar conformation, and perhaps a fourth (Didunculidæ) for *Didunculus*.

The Dodos must be held to belong to quite a separate section of the order.

12. GALLINÆ, and 13. OPISTHOCOMI.

As regards the true Gallinæ, which we now come to, we cannot do better than adhere to Prof. Huxley's excellent division of them into Peristeropodes and Alectoropodes. In the former section I have recognized two families, Cracidæ and Megapodiidæ; in the latter two also, Tetraonidæ and Phasianidæ. Whether the Meleagrinæ and Numidinæ should stand as subfamilies of the Tetraonidæ (as arranged in the 'List of Animals' for 1879), or as separate families, is, I think, not quite certain. The Turnicidæ, there treated as only a family of the Gallinæ, as also *Opisthocomus*, must, I think, after Prof. Huxley's elaborate discussion of the subject[‡], be definitely constituted as separate orders, Hemipodii and Opisthocomi—the former leading off towards the Crypturi, the latter most nearly allied to the Cracidæ, and also showing manifest signs of alliance with the Coccyges among the Picariæ.

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[*] Tentamen, p. 97.

[†] P. Z. S. 1868, p. 254.

[‡] P. Z. S. 1868, p. 311.

14. GERANOMORPHÆ.

In the 'Nomenclator' I have placed the Rails next after the Gallinæ, to which they show manifest symptoms of relationship, under Prof. Huxley's title Geranomorphæ*, and divided them into two suborders, for which I have used Nitzsch's names Fulicariæ and Alectorides. In the last edition of the 'List of Animals' (1879) I have added the Bustards and Cranes and considered these suborders as orders, which is perhaps the most natural plan, although *Aramus* is certainly intermediate between the two groups. After Prof. Garrod's investigations, however †, we must, I think, allow that *Aramus* is essentially more nearly allied to the Gruidæ.

The familes of these two orders will therefore accordingly stand somewhat as follows :—

FULICARIÆ.
Rallidæ.
Heliornithidæ.

ALECTORIDES.
Aramidæ.
Eurypygidæ.
Gruidæ.

Psophiidæ.
Cariamidæ.
Otidæ.

By placing the Otidæ last we obtain a more gentle transition to the Limicolæ through *Œdicnemus*.

15. LIMICOLÆ.

The Limicolæ or Scolopacinæ of Nitzsch (Charadriomorphæ of Huxley) form a very natural group with but small pterylographic differences. They also exhibit a characteristic form of skeleton and a well-marked type of schizognathous palate. In the 'Nomenclator' I have assigned the following families to this order :—

1. Œdicnemidæ.
2. Parridæ.
3. Charadriidæ.
4. Chionididæ.
5. Thinocoridæ.
6. Scolopacidæ.

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* P. Z. S. 1867, p. 457.

† P. Z. S. 1876, p. 275.

Prof. Garrod* would exclude *Œdicnemus* (as being holorhinal) entirely from this order, and associate it with the Bustards (*Otis*). But if we give in to this principle we should have to place the Plataleidæ among the Limicolæ, which I cannot agree to.

16. GAVIÆ.

In the 'Nomenclator' I have made the Gaviæ to include the Petrels (Procellariidæ) as well as the Gulls (Laridæ). But I now think it better to restrict the term Gaviæ to the latter group, the Longipennes of Nitzsch, which, not only as regards their osteology, but also in respect of their pterylosis, come very near to the Limicolæ †.

The Gaviæ will therefore consist of the single family Laridæ, while the Procellariidæ will constitute the order "Tubinares" (Nitzsch). The propriety of this separation is confirmed by what Prof. Garrod has stated (P. Z. S. 1879, p. 37) as to the form of the nasal bone in these two groups.

17. PYGOPODES, and 18. IMPENNES.

The Pygopodes of Illiger combine the two families Colymbidæ and Alcidæ, which are also closely allied pterylographically. They seem to form a natural transition between the Gaviæ and the Impennes. Nitzsch (Pterylogr. p. 151) has associated them with the latter group; but the Penguins are very distinct not only in their osteology, but also in their pterylosis, as admitted by Nitzsch himself, and have full claims to constitute an order *per se.*

19. CRYPTURI.

Under this term (of Illiger) I have placed in the 'Nomenclator' the Tinamidæ, which, as Mr. Parker has shown (Trans. Zool. Soc. v. p. 149), have a completely struthious palate, and in other respects come at the bottom of the series, and are nearest of all Carinate birds to the Ratitæ. In so doing I make, of course, no claim to originality, but have simply followed Prof. Huxley, who first located the Tinamous in their position under the title "Dromæognathæ"*.

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* P. Z. S. 1873, p. 37.

† *Cf.* Nitzsch, Pterylogr. p. 141; and Huxley, P. Z. S. 1867, p. 458.

20. APTERYGES, and 21. STRUTHIONES.

In the table given in the 'Nomenclator' (p. iv) I have recognized only two orders of Ratite birds—Apteryges and Struthiones. But there is no doubt, I think, that the Casuaries have full claim to ordinal rank, and should likewise stand as an independent order. Their very peculiar pterylosis, apart from their marked osteological differences from *Struthio* and *Rhea*, would alone entitle them to this distinction. I would therefore propose to designate them Casuarii, the simple Latin plural being, in my opinion, a better term for the group than any name which would be a fresh burden on the memory.

Amending the "Systema" according to the suggestions above made, we shall find it come out in two subclasses and twenty-six orders, somewhat as in the following table, where I have added to the name of each order about the number of species known to belong to it, basing my calculations mainly on the figures given in the second volume of Mr. Wallace's 'Geographical Distribution.'

Orders of existing Birds.

Subclass CARINATÆ (10,121 species).

I. Passeres	5700
II. Picariæ	1600
III. Psittaci	400
IV. Striges	180
V. Accipitres	330
VI. Steganopodes	60
VII. Herodiones	130
VIII. Odontoglossæ	8
IX. Palamedeæ	3
X. Anseres	180
XI. Columbæ	355
XII. Pterocletes	15
XIII. Gallinæ	320
XIV. Opisthocomi	1
XV. Hemipodii	24
XVI. Fulicariæ	150
XVII. Alectorides	60
XVIII. Limicolæ	250
XIX. Gaviæ	130
XX. Tubinares	100
XXI. Pygopodes	65
XXII. Impennes	20
XXIII. Crypturi	40

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* P. Z. S. 1867, p. 125.

Subclass Ratitæ (18 species).

XXIV.	Apteryges	4
XXV.	Casuarii	10
XXVI.	Struthiones	4

In concluding these somewhat desultory remarks I must beg my fellow workers not to suppose that I claim any originality for the system above given. It having been a necessity for me to employ *some* system in certain pieces of work (such as the 'Nomenclator' and the various catalogues of animals in the Zoological Society's Gardens), I have endeavoured to frame one that is free from certain objections which are patent in the systems usually followed. It will be seen at once, by those who care to examine the references above given, that I have borrowed freely from the labours of Nitzsch, Huxley, Sundevall, Parker, and Garrod—authors who have lately shed a flood of light upon one of the most difficult zoological problems of the day, the best arrangement of the class of birds. My system is, in fact, that of Prof. Huxley's reversed, *i. e.* beginning at the top instead of the bottom, with slight alterations and emendations extracted from the works of the other authors above mentioned.

XLI.—*Henry Durnford's last Expedition to Tucuman and Salta.*

(Plate XII.)

[The following is an almost verbatim copy of the diary of the late Henry Durnford, to which allusion was made in our July number. Some difficulty has been experienced in the matter of orthography, more especially as regards the names of places, but every care has been taken to avoid mistakes.]

May 14, 1878. Left the Central Station (Buenos Ayres) at 2 p.m. for Campana. During the journey saw most of the birds one sees on this route, *i. e. Ciconia maguari, Larus cirrhocephalus,* and Ducks of many kinds, Spoonbills, a few Swallows (*Hirundo leucorrhoa*), *Lichenops perspicillatus,* &c. The opening of the Campana Railway has done a great deal towards fostering agriculture, and many acres of land previously open campo are now covered with maize, alfalfe, wheat, and, nearer Buenos Ayres, many peach-plantations. We arrived at Campana about 4.30, and at once embarked on the steamer 'Pruveedor.' The passengers chiefly consist of Russian emigrants, many of whom are going to the province of Cordova. They have enormous boxes (I suppose all their personal property is contained in them), and the hold is soon filled. After leaving the mole we sit down to an excellent dinner—seven courses, coffee, and excellent French and Spanish wines. Meanwhile, with a bright moon overhead, a keen and almost frosty air, the steamboat ploughs its furrow through the broad bosom of the Parana. The scenery by moonlight is very striking, much more so than by daylight. After leaving Campana the left bank of the river is formed of a steep baranca which increases in height as we ascend. Five or six hours of steamboat-travelling is avoided by the Campana route; but for any one who has not seen the islands in the delta of the Parana, I should recommend the route from the Tigre, taking the Northern Railway train from Buenos Ayres. The channel between these islands is sometimes very narrow, and a good view of the vegetation is thus afforded. At midnight we pass Zarate, the arsenal of the Republic, and San Pedro, higher up the river.

May 15. At daylight I am awoke by the noise of landing some cargo at San Nicolas, a place of considerable importance, which receives goods direct from Europe; it is situated on the borders of the provinces of Buenos Ayres and Santa Fé. About 10 o'clock we arrive at Rosario, the scenery on the banks of the river remaining the same. Black-headed and Ashy-headed Gulls (*Larus maculipennis* and *L. cirrhocephalus*) are common. *Sterna magnirostris*, a few seen. Bird-life, however, is very scarce on these waters.

About 10 A.M. I landed, and taking a cart, after showing my things to the custom-house officers, who gave me very little trouble, I went to the Posada de los Cuatro Naciones, close to the Central Argentine Railway-station, to be ready for the early train in the morning to Cordova. Unfortunately

I broke the key of one of my boxes; it was 4 P.M. before I could get it repaired.

Rosario seems a very dull inactive place, and the natives I have seen have been either smoking or drinking maté, with few exceptions. The proverb of putting the cart before the horse is a common one in England, but it is carried out to the letter in Rosario. The carts are fitted with one pole, to one side of which the horse is fastened by the rinch or girth at his side. The animal thus, when the road is rough, sometimes turns round, and almost facing the cart, pushes it in front of him. The horses are finer than those in Buenos Ayres.

I bought some snails from an itinerant vendor this afternoon, and after taking out the insides as well as I could, I put them in paper and labelled them "Land-Shells, Rosario." I found them very common.

The weather is extremely cold; the thermometer in the shade at 5 P.M. to day was 44° Fahr.

May 16. Left the Central Argentine station at daylight this morning, 6 A.M. Shortly before arriving at Roldan we passed seven tropillas of mules, fifty in each, tended by four men. These were laden with wine and other produce from San Juan and Mendoza, each animal carrying from 100 to 150 lbs. weight. They travel very slowly, not going out of a walk. The country up to Tortugas is undulating pampa, with a stiff argillaceous soil; the grass is coarse, but well adapted for cattle. About Roldan and Cañada de Gomez much maize and alfalfe is cultivated; but the land being fallow at this season, I was unable to see what other cereals it produces. Up to Tortugas, with the exception of a few *Buteo erythronotus,* I saw no birds I was not familiar with in Buenos Ayres. Much of the land is swampy, with some lagoons.

After leaving Tortugas the country becomes more wooded with tala, chanar, and algaube, the latter a dark-red thorn and much used in Buenos Ayres for fuel, the two former white thorns, and of no value for firewood, but useful for making corrals and for building-purposes. As we near Belle-

Ville station (called by the natives Frayle muerto) I noticed many (to me) new birds, green Parrakeets with long tails, some quite or nearly white *Tæniopteræ*, Gulls (I think *Larus maculipennis*; of course not new), a large black-and-white Kingfisher, some *Rhea americana*, also some of the small pampa deer. About 4.30 we reach Villa Maria, the country from here to Cordova being flat and undulating alternately, but well wooded, the soil and pasture being the same as about Rosario. Shortly after leaving Villa Maria the Sierras come into view; but they are not very striking from a distance, and appear like long flat ridges. At 9 P.M. we enter the holy city of Cordova, after a run of 246½ miles in 15 hours. The city is in a valley on the banks of the Rio Primero. I make my way at once to the Hotel Central, where I get a very comfortable room at moderate charges.

May 17. At 7 A.M. I find myself at the Northern Argentine Railway-station, and the train is soon in motion for Tucuman. The country at once becomes thickly wooded, the trees the same as in approaching Cordova. For the first twelve miles we traverse an undulating pampa; and then the ground is more uneven, and well-rounded hills are seen on all sides. The Sierras to the west appear something like Welsh mountains. The engine burns wood and we stop at every station to take in a load.

At noon we reach Los-Pozos station, after passing between the Sierra Ischilin and Sierra Quilino. The train labours up the ascent, the ground much broken and the rocks granitic. (N.B. Los Pozos possesses an hotel, and is situated close to the foot of a spur of the Sierra Quilino. It might be a good place to collect for a short time. Being on the outskirts of extensive woods, I should think it would be good for beetles &c.; much wood-cutting is carried on here.) At 2 we reach Quilino. We have now passed between the Sierras and rapidly run down hill. The forests are getting thicker and the undergrowth more luxuriant. Creepers of various kinds, acacias, large and small cacti, algaube, tala, and chânar, all seem to grow luxuriantly. About 5 we reach Recreo, after skirting the shores of an enormous salina (Salina

Grande), which is now full of water, but which is dry in summer. Here we sleep, the company finding beds and dinner free. There is no fresh water to be had in the neighbourhood, it being all brackish, and all used is brought in tanks from a distance.

May 18. We are delayed five hours in starting, owing to some trucks having broken down on the line, and soon after we get away one of the iron rods supporting the spring of our engine breaks, causing a further delay of an hour.

At Recreo I saw a tame hare, taken in the neighbourhood when quite young, but now full-grown. It appeared to me the same as the Patagonian species. I believe it must be the kind Burmeister has lately described as new: he received some skins from this neighbourhood. The black on the rump is perhaps not quite so dark as in the Patagonian species, and the sides and breast may be also lighter. (N.B. When I pass back this way I must try and get one or two specimens; they are quite common in the neighbourhood.)

As we continue our journey we pass through vast forests till within fifty miles of Tucuman, when the country at once becomes fine level pampa, with numerous herds of cattle and some small woods. Nevertheless water is scarce, and artificial ponds have to be made to obtain it. The pasturage is thick and luxuriant.

At 9.30 we reached Tucuman, and I take a carriage to the Hotel Paris, about ten squares, or blocks of houses, from the station.

May 19, Sunday. I delivered my letters of introduction to Juan C. Mendez and Incencio Liberani. The latter seems well up in the natural history of this locality (Professor of Natural History in the National College), and says that very little can be done in collecting near Tucuman. He advises me to buy three mules and hire a peon, and thus go to Oran. I intend taking his advice, and so shall do this as soon as things can be arranged.

The chuchu, or intermittent fever, hangs like the sword of Damocles over this country. I have seen one of the lads in this hotel suffering from it, and it is a most virulent form of ague. The principal cause of it is the quantity of stagnant water in the neighbourhood; but the sudden changes of temperature, which cause chills, must undoubtedly also have something to do with it.

May 20. To-day I have seen Dr. Brulant and Señor Santillan, to whom I had letters of introduction. With the advice of the latter, I have made up my mind to hire four mules, two for baggage, one for a peon, and one for myself. He says it will be much cheaper than buying them.

Tucuman is situated on low land; the Sierras are within five miles of the town, and run about N. and S. The second range of Sierras seems about twice as high as the first, and the tops seem generally in the clouds. The first range is about 2000 feet high.

May 21. I have not yet been able to procure mules, and am waiting while Sr. Santillan is making inquiries &c. for me. I have engaged a peon, Andrada by name, at 15 dollars per month, and I also find him his food. He is a "Tucumano," and appears a rough-looking fellow; I hope he may turn out well.

May 22–23. Patience. Still waiting for the mules. In this country it is no use being in a hurry. It is now the beginning of winter here, and the thermometer in the patio of the hotel at night averages about 60° Fahr.

May 24. I have been out shooting for an hour this morning close to Tucuman, and found the following Buenos-Ayres birds:—common, *Troglodytes furvus, Vanellus cayennensis, Saurophagus sulphuratus, Ardea cocoi, Zonotrichia pileata, Pholeoptynx cunicularia, Furnarius rufus, Polyborus vulgaris, Molothrus bonariensis, Milvago chimango*; rare, *Coccygus melanocoryphus, Guira piririgua,* in parties of three or four; and I also shot and skinned a small Tyrant-bird, not uncommon, flies like a Woodpecker. Finch, reddish underneath, with a very stout beak; two seen. *Mimus* of some kind common, and a very small insect-eater; two seen.

I found some clear-winged butterflies pretty common, also the peacock-butterfly and painted lady common, and the white butterfly of Buenos Ayres abundant.

May 25. *Turdus rufiventris* (?). I shot a Thrush this morning, which I believe to be this species, and found it not uncommon.

May 26. Butterflies. I have taken some today near the Rio Dulce, but all, I believe, common ones. There are very few to be had now.

May 27. All day trying to find mules, but unsuccessful; the people of this country are so intensely slow and lazy.

May 28. Partridge, the same as the small one seen in Buenos Ayres, pretty common about the campo. Started early this morning with an estancien to see some mules about eighteen miles S.E. of Tucuman. We arrived about 12 at his estancia, and after breakfast I chose four mules out of his troop of about forty. I remained the night at the estancia.

The campo about there is not unlike the Buenos-Ayres campo; but the pasturage is stronger, and the ground more undulating and woody. It has the great disadvantage, however, of being very short of water; artificial ditches have to be made for leagues to carry the water from the river to the campo.

May 29. I arrived at Tucuman about 11 A.M. with the mules. All the afternoon I was engaged trying to find "aparejos," or pack-saddles for them. Finding it impossible to meet with any, I determined, if possible, to hire a cart, and tomorrow morning I am going with Sr. Santillan to see if we can meet with one. I believe that, on the whole, it will be much more convenient than pack-mules.

May 30. At last, I believe, all is arranged, and I hope to be able to start tomorrow morning. I have bought today a pair of aparejos, for 8 and 6 dollars respectively. The mules cost me 30 dollars each. I am anxiously looking forward to the journey.

May 31. Started at 10 A.M. this morning for Salta. Our journey at first lay through thick woods till after getting about six miles from Tucuman the country became more open. About 1 it commenced to rain, and I determined to stop at the first rancho if possible. Accordingly, about 2, we met with a very hospitable old Tucumano, who gave us the use of one of his sheds for sleeping. I went out and shot three birds and skinned them. Jay, called "Urraco," common, one skinned; it has a variety of notes, varying from a screech to a shout. Crested Sparrows, two skinned, very common about the low hedges; they have a peculiar loud and jarring note and go in flocks, appear to prefer thick cover to open ground. Some other Buenos-Ayres birds seen here are:—*Columbula picui* and *Tinnunculus sparverius,* common everywhere; *Cinclodes fuscus,* scarce, near the river; *Sycalis luteola,* very common about trees and shrubs; *Paroaria cucullata* and *Fluvicola albiventris,* common everywhere; also *Myiarchus tyrannulus.*

June 1. The morning looked very threatening when I awoke about 7 A.M., and I determined to wait a little to see if it would clear up; but finding it still cloudy at 10 I started, and we slept that night about six leagues from our rancho. The road, as far as we travelled, is exceedingly pretty, and towards dusk we approached close to the Sierras. On the journey I shot three birds called "Cursor" (Arg. "Chuña"): two seen on the road today frequenting stony ground, and one shot; not common: saw no more. Jay, a long-tailed one, shot today in the monte, and two more seen. Woodpecker, one shot and skinned.

The road all the time runs through thick woods. We pass very few passengers on horseback or muleback, but several troops of "mulas cargadas" and "carros," also bullock-waggons. I had hoped to reach Vipos by dark; but finding it impossible, and the night very misty, we slept on the campo.

June 2. We made an early start and reached Vipos about 9 A.M. We have been ascending some low Sierras for the last few miles, and the view looking down on Vipos, situated, or rather buried, amongst numerous Sierras, is very fine. The village takes its name from a river flowing about E. and W. from the Sierras. I determined to remain here some days, and accordingly went to the posta of the diligencia, and there I found a very obliging landlord, who allowed me the use of a room &c. We unpacked the mules as soon as possible, and I took a walk after skinning the birds shot yesterday. The Sierras are barren, and, I imagine, something like Mendoza, very stony (all granite); but the people are too lazy to turn this to account, and prefer to live in mud ranchos. I shot some birds and saw many; but the country here is evidently not so rich as on lower ground. The thermometer at dusk marked 51°, and a cold wind all the morning rendered my excursion not very pleasant. The principal things that strike a stranger here are the large cacti, some of which grow as high as thirty or forty feet, all armed with most formidable-looking spines.

The country reminds me somewhat of a luxuriant Patagonia, the trees being large but scraggy, and the thorn-bushes and underwood not very thick. I took a walk in the morning and found Crested Sparrow very common in flocks, one skinned; Humming-bird, one seen and skinned, no more seen. I believe this to be the species I wanted. A little dusky insect-eater, pretty common; one skinned. *Parula pitiayumi* very common; one skinned. Black-headed Tit pretty common; one skinned. All these I found on the slopes of some low Sierras near the Rio Vipos; I also saw two more Buenos-Ayres birds, *Sisopygis icterophrys* and *Elainea albescens*, common. All the birds seen today may be considered Sierra birds, in distinction to those which frequent the more luxuriant woods and thickets.

June 3. Took a walk, same direction as yesterday. Humming-bird, long-tailed, quite common; young of the year have tails much shorter than the old ones of both sexes. Red-breasted Finch, male and female shot, pretty common. Reddish thicket-loving bird, pretty common, has an exceedingly loud and jarring note; one shot. Small Flycatcher, one with long tail, shot; pretty common in the thickets. Small Flycatcher, short-tailed small one, rare; one shot. Partridge, one skinned, erects crest sometimes. The weather is very cold, the thermometer this morning at 8 A.M. marking 49°, a very unusual figure for this place, even in winter.

I will just mention now that Tucuman possesses in Señor

Liberani a very active and intelligent Professor of Natural History for the National College. The great difficulty he has to encounter is the want of funds, the government not allowing him more than his salary, no subsidy for museum &c. He is most courteous to strangers who visit him or take an interest in their mutual hobby.

June 4. Chuchu seems to be the great curse of the country. About one fourth of the people are constantly suffering from it. Whether it comes from damp or the sudden changes of temperature, I am unable to say; but the general opinion here is that it arises from dampness; and yet here, at Vipos, the climate is exceedingly dry, and the air feels fresh and invigorating, but chuchu is only too well known. The summer months (the wet season) are the most fatal.

The owner of the estancia and posta where I am staying is a Chileno, and a delightful companion. He has been out shooting with me, and it is a pleasure to see the ease with which he threads his way through the thick undergrowth and cover in the monte. I can hardly keep up with him.

Wood-Pheasant (Argentine "Charata") not uncommon in the thick monte, lives in the trees; when flying spreads its tail, and sometimes erects the elongated feathers on its head. Nests in trees, making large structure of sticks.

Thrush, one shot to day, the only one seen; habits apparently like the common *Calandria* here.

Finch, one shot, a young bird apparently; the old ones are, I believe, perfectly bluish all over; saw several.

June 5. Started at 10 A.M., leaving my kind host. The road is winding through beautiful scenery. We travelled for eighteen or twenty miles, at 4 P.M. reaching Trancas, where we passed the night in a rancho. No collecting.

June 6. Started early on our journey. For the first twelve miles road, as usual, wended through thick monte near the foot of the Sierras. About noon reached Tapi, a most beautiful spot, the scenery to the left, looking up the river of that name, being most lovely. The Sierras are low, but much broken, and irregular ground prevails, making the picture any thing but monotonous. We are now, after passing

Tapi, in the province of Salta. The road now gradually ascends, and the country becomes quite open as far as Mozotes, where we stopped, about sixteen miles from Trancas. Cattle are numerous here, and goats, but very few sheep. I am told that goats pay better than the latter. The weather is very cold, quite like winter in Buenos Ayres. Ostriches, many seen on the open campo about Mozotes Bandumia, same as in Buenos Ayres. Finch, yellowish green, one skinned; common in the woods bordering on the open camp.

June 7. Started at 8 A.M. from the plain of Mozotes. This place is beautifully situated amongst the Sierras, and the scenery is especially charming. The view to the left, taking the road to Salta, brings in sight high and rugged Sierras, that in front being low, over which we pass. About five miles from Mozotes the open campo ceases, and we again enter woods. The road continues thus, but very winding, till we reach Rosario, about 3.30, a good twenty-one miles from Mozotes. Here I determined to stay a few days, and found an empty room. Impossible to collect travelling.

June 8. This morning took a walk to the east of Rosario, towards Agua caliente, or the hot springs, which, I am told, exist about six miles from this place; but tomorrow, or next day, I intend visiting them, as it is something very unusual to meet with such a thing here, and they are probably the only ones in the republic. There is not much collecting to be done here, the country being everywhere the same—woods and Sierras. The people are kind and hospitable, but intensely lazy and indolent, doing nothing but what is absolutely necessary. I am living in a room for which I pay 2 rs., paying 2 rs. daily for the mules, which feed in a potrero; it costs me less than 1 dollar 4 rs. to live here, in English money about 4*s.*; alone I could live here for about 2*s.*

Pretty little Finch, "Pepitero," pretty common in the woods: one shot.

Red Finch, "Perisoso," a few seen, one shot; the female, I believe, is green.

Large Hawk, rare, one shot; seen also at Vipos.

Small blue insect-eater, one shot, but not common.

Woodpecker, pretty common, one shot; has a loud whistling note.

Crested Sparrow, common, goes in flocks like *Zonotrichia pileata*; one shot.

Humming-bird, long-tailed, seen in the monte this morning.

June 9. I took a walk along the river, but had to return, owing to rain, which fell slightly all day. There is nothing interesting in Rosario; the nearer one goes to the Sierras the thicker the woods become, which seems to be the rule everywhere here.

Machetornis rixosa, one skinned, common in flocks; spends most of its time on the ground. *Synallaxis,* one shot; the northern representative of *S. major* of Buenos Ayres; uncommon; makes a large nest of sticks, with hole in one side; loud and screeching note. Toucans come as far south as this. Several persons have described the bird to me as existing in the monte, but I have not seen it.

June 10. Today we have had almost incessant rain, and I have hardly been able to do any thing. At one o'clock, however, I took a horse and rode with a man I met with here to Agua caliente. This hot spring is on the side of a hill which forms part of a Sierra running about N. and S. The ridge of the Sierra is low, and distant about five miles S.E. from Rosario. The water issues from various points, in some places very hot (too hot for the hand), in others warm only, and in others cold. It comes with considerable force, and runs all the year. Many persons afflicted with the chuchu and other diseases come to these springs in July and August, for which it is said to be a very good cure. The rocks here are porphyry and a kind of granite. I have brought a sample. The cleavage is about E. and W.

Humming-bird, long-tailed, very numerous by the hot spring.

Little Blackbird (same as in Chuput) common by the river.

Little cinereous Plover (same as in Buenos Ayres), a few seen by the river.

June 11. Left Rosario this morning about eleven, traversed about fifteen miles, and stopped for the night at Lo Noyalitos, a collection of huts in open camp-land.

The scenery is more beautiful after leaving Rosario, and the road finds its way over many little hills and valleys.

Hawk, one shot; only one seen.

Buenos-Ayres White Falcon (*Elanus leucurus*), black wings; a few seen on open lands.

Patagonian Falcon (*Circus cinereus*), the common kind; female brown, male white; a good many seen.

June 12. Started early from our rancho of last night, and did about eighteen miles, stopping the night at Rio de las Piedras. Scenery lovely, the low Sierras dotted with trees to their summits. The weather is more favourable, and today has been very warm, the thermometer at 8 P.M. marking 71°. Scenery continues lovely; the birds as yet do not, however, differ much from those seen near Tucuman. I intend stopping here tomorrow to rest the mules, and in three or four days afterwards I hope to be in Campo Santo and call on Sr. Cornejo.

This (Rio de las Piedras), I think, would be a good spot for a collector. The woods are large and thick, and the river always well supplied with water. Scenery improves still more as we advance. *Synallaxis*?, one shot, three seen, male, frequenting low scrub in open spots.

June 13. Remained all day at a rancho close to Rio de las Piedras, where I slept all night. Shot a few birds.

Limnornis common in the low bushes; it has a loud jarring note, like *L. curvirostris*, and hides continually in the low bushes; one shot.

Minute Woodpecker, one shot, only one seen; habits similar to others of this genus, but frequents smaller trees.

Small Flycatcher, common, one shot. I believe same as that shot on the 8th, but I am not certain.

Pigeon, one shot, very common, frequents pretty low trees, seen everywhere; sometimes raise long feathers on head.

One other bird shot and skinned.

June 14. Started at 9 this morning on my journey; about 6 arrived at the Rio Pasaje, the largest I have yet seen.

Like all the others, it runs about east and west, and in the time of floods is difficult to pass. The scenery, as usual, has been very lovely. One of my mules (a cargen) shows signs of knocking up, and I have determined to remain here to-morrow to rest him. There is no meat to be had in the place, which is a great drawback, and consequently I am without any thing to eat.

June 15. Went out shooting by the river today, but did not get very much. The only thing I can get to eat is a fish, which I bought for sixpence. My hooks are not large enough to catch the fish here with. In addition to the Buenos-Ayres birds mentioned before, I have seen:—*Anthus correndera,* rare; *Tæniopterа coronata* and *Serphophaga nigricans,* common; *Elanus leucurus, Milvago chimango,* and *Ardea cocoi,* rare; *Ardea* ?, large, white, rare; *Theristicus melanopis,* common; *Ægiatitis collaris,* rare, in river-beds.

Little insect-eater, one shot, very common in low scrubby ground.

Dark-blue Finch, common; feeds on buds and berries.

Sparrow, very common.

Jay, long-tailed, common in thick woods; remains motionless on bough a long time; called "Gallo del Monte."

June 16. Went out shooting again, but did not do much. I shall leave here early tomorrow morning. In the afternoon passed a gentleman going to Rio de las Piedras, who owns a factory there; promised to call if I passed back the same way. His name is Don Patricio ——.

The weather has become very cold. The soil here is very fertile. Don Patricio assured me that one aroba of wheat had yielded him twenty-five arobas in Rio de las Piedras. Goats here are worth about 6*s.*, sheep 3*s.* There is a flock of goats guarded by two dogs; every morning the dogs take the goats to the monte to feed, where they remain all day. At night they bring them back. The owner assured me that they sometimes went as far as six miles, accompanied by the dogs, a lurcher and a rough-haired little terrier.

Synallaxis, one shot, only one seen; found in low thickets, like the majority of the others of the genus.

June 17. Left early, arriving at night at the Posta Palonite. The scenery is beautiful, as usual, but the soil is more arid as we go north, and the trees smaller. We are now on very high ground. At this post I had to pay two pence per head for my mules to drink, there being no natural spring in the neighbourhood, nor on the road from Rio Pasaje. One of the mules shows many signs of failing. Shot nothing.

June 18. Left the posta about 11, arriving at 4 at Cobos, a small village of about 100 inhabitants, twelve miles. Nothing of interest to note. Water scarce on the road, but plentiful at Cobos.

The road for Campo Santo leaves the Salta road here, the latter going W. by S., and the former N.

June 19. Took a walk in the monte near Cobos. This village is situated on high ground amongst low broken Sierras. About two leagues south of Cobos is a large lagoon, containing water throughout the year. It has lately been fenced in, the land having been sold by the government, and one has now to pay about two pence per head for animals to drink. It is a great shame, situated as it is by the roadside. Large Parrot, one shot, very common here. It does not usually go as far south as Tucuman, but here is very common; feeds on buds. Small Humming-bird, one shot, several seen. Humming-birds are numerous here, though the verdure is not luxuriant. Black-and-white insect-eater, one shot, seen all the way from Tucuman; lives in thickets and shuns open places. Brown Finch, common, one shot. Little Blackbird, one shot, seen frequently all the way from Tucuman.

This evening I caught a bat, which is common here, and which I have met with throughout the provinces of Tucuman and Salta, but have not been able to obtain before. It has a most curious fleshy shield, which arises from above the nostrils and stands erect about $\frac{1}{3}$ of an inch. It is very sparsely covered with hair. I presume it is an organ of feeling.

Chauna chavaria and *Cygnus coscoroba* common in the lagoon "Cabeza del buey."

June 20. Shot nothing and took a rest for the sake of the mules, which require it much. The people (Sattenos) with whom I am now stopping are the meanest and most miserable lot I have met with yet. They are two brothers, are rich, and have considerable plantations of sugar-canes, live in a small rancho, eat out of one plate, never, as far as I can see, buy any thing to eat but charqui, which, with an occasional potato, forms their sole food, the soup made therefrom their sole drink. Fortunately it is rare to meet with such persons.

June 21. I left the house, not sorry to do so. Cobos is situated a little to the north of Salta, on the road to Oran. Being situated on high ground, birds are now very scarce. The rocks seem in great part volcanic, and the hills and Sierras assume very fantastic shapes. About 12 I arrived at Campo Santo, at the establecimiento of Don Juan Cornejo. He is a most kind and hospitable gentleman, and placed a room and every assistance at my disposal. I intend stopping here a few days to recruit the mules, and shall then take a by-road, which he recommends to me, to San Pedro, towards Oran. This I intend to make the limit of my journey, so shall probably stop there some time.

The weather is very cold, at 4.30 the thermometer marked 52°. Last night it was so cold I could not sleep, and in the middle of the day so hot that I could not go out shooting.

Hawk, one shot, not common, but seen occasionally throughout my journey. A very swift flier, and frequents comparatively open campo-land.

Finch, male and female, shot, not uncommon, goes in large flocks. *Sycalis luteiventris* is very common, in enormous flocks.

June 22. Thermometer 8 A.M. 46°. Weather still cold and cloudy. Sr. Cornejo, with whom I am now staying, has large plantations of sugar-canes. His ancestors were the first to introduce this plant from Peru, as well as the coffee-plant (*Chirunga*) and other productions. Except in the hot season the sugar-cane always flourishes, and is used for various purposes. The greater part of the work in this establishment is done by "Malaco" Indians from the Chaco. Every year Sr. Cornejo sends his capataz to the Chaco to bring the Indians to Campo Santo. He, the capataz, finds all the food on the road, and returns with them when the work is finished; they come in April, and leave in September or October. Whilst here they live in huts made of the sugar-cane after the sweet juice has been extracted, built in the shape of ants' nests. They show considerable skill in building these huts, but live like pigs inside. They form a small colony of about 300 persons, all told, men, women, and children, close to the house, are great thieves, and have to be carefully watched. They live in the Chaco a perfectly nomad life, like the Patagonian Indians, spending most of their time on the shores of the Vermejo. Having no horses, they travel on foot, and cover immense distances, the women carrying all the goods of each family. Their weapons are bows and arrows, made of extremely hard wood, and spears. With these they kill small animals and birds, which, with the natural fruit, form their food. They are extremely superstitious, and appear lower in the scale than Patagonian Indians. They average about 5 feet 6 inches in height, and are well formed, face flat, hair black and long, complexion mahogany, head round. They wear nothing but a puncho here, and in the Chaco clothe themselves in animal skins. They have no idea of a God, but have great fear of an evil spirit, and are intensely superstitious. They have no kind of writing, and make no hieroglyphics whatever. Sr. Cornejo has offered to give them ground to cultivate and cows for breeding; but they prefer their nomad life in the Chaco to the more civilized habit.

The chirumoya is a fruit very little known, introduced from Peru by the ancestors of Sr. Cornejo to this country. It is a tree about fifteen feet high, but the branches spread to some distance. The fruit is about the size of a large orange, with a smooth green skin, of an irregular but roundish form. The inside is a dull whitish substance, the seeds flat and black; all the interior, with the exception of the seeds, is eaten, and it has a delicious sweet and agreeable taste.

Buteo erythronotus, one shot, pretty common in the more open land.

Little black Flycatcher, male, one shot, common; perches on low bushes. I believe also the brown Flycatcher is the same species, but the female of the above; one also shot. *Zonotrichia pileata*, two shot, very common everywhere. Little reddish Flycatcher, common, one shot, a female. The male has a bright crimson crest.

Little rufous Flycatcher, one shot. Lives in low trees; the male is black, I believe.

June 23–25. During the two first days I remained at Campo Santo, or rather San Isidro, having an exceedingly pleasant time. The nights are cold, but the days delightfully warm. On the last-named date I left in the afternoon for San Bernardo, a small hamlet on the property of Don Cornejo. We arrived in the evening, though only twelve miles, having many delays with the mules. It is to the east of San Isidro, at the foot of some low Sierras and close to the Rio Lavayer.

June 26. I am established at the house of Don Rudolpho Figaro, at San Bernardo. The woods here are very large and the verdure luxuriant. On some neighbouring Sierras, about five miles to the east, there is often snow, and fifteen miles to the west there is a range of Sierras whose tops are rarely without snow.

Hawk, one shot, common, seen frequently during my journey from Cordova; frequents same places and flies much the same as *Tinnunculus sparverius*.

June 27. It is much colder here than at San Isidro. Every night we have a frost. The thermometer at 9 A.M. in the shade averages about 40°. At midday, or rather about 2 P.M., it rises to 70°, and in the sun much higher. Skinned eight birds.

Woodpecker, small, same as about Rio de las Piedras, common; frequents low trees.

Woodpecker, red-headed, common in the monte; two shot.

Flycatcher, two shot, common.

Finch, two shot, common; feeds on buds.

June 28. Went out shooting and did collecting. The woods are good for small birds, containing many pools of water. Skinned six birds. Very cold at night, in the day very pleasant.

Black Ibis, rare in the swamps, one shot.

Bittern, one shot in a swamp in the woods, only one seen.

Kingfisher, male and female, shot in the monte, not common; the female has rufous on the breast, like the former.

Partridge, lives in the woods, not common, only one shot.

Small Finch, one shot, male and female alike; rare.

There is a smaller Bittern of a light grey colour, also Snipe; neither yet obtained.

June 29. Thermometer 9 A.M. 33°; hard frost last night.

Large Owl, ♂, one shot in the monte; lives in shady spots amongst large trees; not seen again.

Creeper, same as shot previously, common, one shot. *Milvago chimango*, saw one today; rare here. Woodpecker, one skinned, common. These birds have some habits like Woodpeckers in flight, feeding on trunks of trees, but spend much time on the ground, feeding on insects there.

[Subsequent to the 29th of June no entry appears in the diary, nor do any of the birds which have reached England seem to have been killed at a later date. We gather, however, from other sources, that he remained for some days at San Bernardo, occasionally riding over to Señor Cornejo's house at Campo Santo. About the beginning of July (the exact date is not quite clear) he was taken ill, and made at once for Campo Santo, evidently feeling that here he would be in good hands should his condition become at all serious. After this Durnford's strength began to fail rapidly, and, notwithstanding all the exertions of Señor Cornejo and his family, he gradually grew worse, and breathed his last on the morning of the 13th July, 1878.]

XLII.—*Ornithological Letters from the Pacific*.—No. IV.[*] *The Gilbert Islands, Kingsmill Group.* By OTTO FINSCH, Ph.D., H.M.B.O.U., &c.

DURING November and December last year I made a cruise in the Gilbert Archipelago, or Kingsmill group, on board a vessel engaged in obtaining natives as labourers for the Hawaiian kingdom, an opportunity which I embraced gladly, although it presented many inconveniences; for it is by no means a pleasure to be in the society of a clamorous lot of half-wild people crying, dancing, and howling day and night, of which our small brig of 156 tons had to carry more than 173, and, reckoning the ship's crew, in all nearly 190 souls. It may be well imagined that we had, in fact, a "full ship," and that it was rather crowded.

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[*] For No. III. see *anteà*, p. 329.

We visited the atolls of Butaritari and Makin (Touching and Pitt), Maraki, Apaiang (Matthew, Charlotte), and Tarowa Tarawo (Marshall, Knox), and, as regards what I saw in ornithology, I may say that the Gilberts are poorer even than the Marshalls, and not worth visiting by an ornithologist. Being already not unacquainted with the birds of the Pacific, my expectations were of course not very high; but even these were disappointed. As, however, only six species of birds had been previously noticed from the Gilberts, my investigations will, in any case, help a little to augment our knowledge.

What we observed at sea was even more unsatisfactory than what I had previously seen of the great ocean. Both species of Tropic-birds (*Phaeton æthereus* and *P. flavirostris*) were many times noticed in single specimens, seldom in pairs, but not of regular appearance. But in the Gilbert seas we had days in which not a feathered creature was to be seen at all, and animal-life in general was of like scarcity. *Tachypetes* I never observed myself, although this noble bird may occur, as I noticed feathers of it used by the natives as ornaments. Of Shearwaters (*Puffinus*) I noticed three different kinds—a black one, underneath white (apparently *Puffinus obscurus*), a second dark brown, breast and remaining underparts white, and a wholly dark one, with short tail, of which I do not remember the name now, although it is a well-known species to me; but on Taluit there are no books of reference, as in Hanover Square, or at the headquarters of the B. O. U.; and of the few volumes which I took along with me, I left the greater part at Honolulu, having on such voyages always too many things to carry to leave room for books.

In regard to the first-mentioned species I may add that I observed the same also in the Marshall group. All these sea-fowl are not easy to recognize, as they seldom come near the vessel, cruising along the tops and in the valleys of the waves, where they disappear in a short time. They were also very few in number, and I never observed more than two or three in the course of a day. Therefore I hesitate to give any names with certainty, although I watched these birds with especial interest. Once I saw a very strange bird, which I could not make out to be any thing else but a *Lestris*. This bird had quite a different manner of flying from Shearwaters. It was of a light brown colour, and came so near to the vessel that I could easily see a white cross band on the underpart of the primaries. Of "Boobies" I observed two species, *Dysporus cyanops* and *D. sula*, which cruised round the vessel for a few times and then disappeared. They were observed only a few times singly, and when we were not more than perhaps a hundred sea-miles from land. Coming within sight of the latter large flocks of Noddies (*Anous stolidus*), mixed with *Sterna melanauchen* and a few *Gygis*, were repeatedly observed. They hovered over the waves, attracted by swarms of fishes, on which they frequently pounced; *Sterna bergii* especially falls down from a considerable height into the water and disappears for a moment. Of this species I observed once in the lagoon of Tarowa a large flock of perhaps fifty or more, sitting on a sand-bank, apparently resting. I may add here that I procured specimens of *Sterna melanauchen* in the first plumage in the beginning of October at Taluit. They were not then able to fly, and had black lancet-shaped spots on the front and vertex, besides other marked differences from the old bird.

Very striking it was to me to find not a single *Anous melanogenys* in the Gilberts; the only Noddy observed by me was *Anous stolidus*. At Tarowa this bird was breeding in the middle of December. The nests, composed of twigs and roots, were placed on the lower leaves of cocoanut-trees at their junction with the trunk. Some birds were still collecting nesting-materials; and in the nests, which never contained more than a single egg, were fresh eggs, eggs in all stages of incubation, and young birds, of which some had attained their first plumage.

The young of *Anous stolidus* are readily to be distinguished from those of *A. melanogenys*, of which species I got young ones in nest-plumage in the beginning of January.

The birds seen along the shores in the lagoons of the Gilberts are just the same as those found in similar places in the Marshalls, *i. e. Strepsilas interpres, Charadrius fulvus, Actitis incana*, and *Ardea sacra*, of which all of the three first-named species wore the full winter dress. *Charadrius fulvus* frequents the dry sandy grounds under the cocoanut-trees, and may be seen sometimes in parties up to four in number, which, however, do not keep together when on the wing.

In Tarowa I frequently observed *Numenius femoralis*, the "Kiwi" of the natives; but they were, as usual, very shy and out of reach on the white reef, where shooting, on account of the sun, sometimes proves dangerous. *Numenius femoralis* is, from what I hear from the settlers, only a winter visitor, and I should not wonder if its breeding-grounds were far north in Eastern Asia (Kamschatka). The species is very rare, and I never counted more than perhaps half a dozen. Besides this Curlew, I observed several times a Godwit, standing very high on its legs, which I supposed might be the eastern form of *Limosa melanura* (*L. melanuroides*, Gould). *Ardea sacra* was more plentiful than in the Marshalls, and on some places not at all shy, coming close to the huts of the natives and perching on the neighbouring trees. That white and slate-coloured specimens belong to one and the same species is a well-known fact, which I confirmed formerly by the investigation of full materials received from the Pacific, and which I can now verify from my own experience. In Butaritari I saw uniformly white birds going always in pairs; I also saw pairs, undoubtedly male and female, of which the one was white the other slate-coloured, or both of the latter colour or mixed with white. There seems to be no regularity of sex or age, for even birds in the dirty pale slate garb, which I always took for the first plumage, prove to be old.

When on Tarowa, 12th December, a gentleman of the vessel went out shooting, and brought home six specimens: there were two males slate-coloured, one female slate-coloured, one female in the dirty so-called young dress, one female white, spotted with slate, one female uniformly white. All the females, even one which I thought to be a young bird, had very small ovaries, but a large patch destitute of feathers (a so-called breeding-patch) covering the whole belly. The gentleman told me that he had met a whole colony of this Heron in some shrubs, and that he felt sure they would have nests there. We intended to visit the spot again, but were disappointed, for the vessel was not going in pursuit of eggs and birds, but natives, and to make a harvest the brig had to leave, so we could not remain behind.

I observed twice *Eudynamis taitiensis* on Butaritari (7th December), but inquired in vain for *Carpophaga oceanica*†, which was unknown to settlers and natives. Of course, as bread-fruit trees are very scarce in the Gilberts, the absence of this Pigeon is not to be wondered at. In regard to this species I may notice here that I received, January 21st, a young one nearly able to fly, at Taluit, resembling the one I got in September.

Except the Cuckoo, which apparently is only a migratory bird, there is no land-bird on the Gilberts; and the total number of species is nineteen, of which I append a list.

Eudynamis taitiensis.
*Strepsilas interpres.
*Charadrius fulvus.
*Actitis incana.
Numenius femoralis.
Limosa melanuroides.
Ardea sacra.
Sterna bergii.
—— melanauchen.
**Anous stolidus.

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† Of this species I have since received one specimen alive from Ponapé, and will mention this here, as this species has not been observed there by Mr. Kubary, who, being no longer employed by Mr. T. C. Godeffroi, is now busy on plantation-work on the same island.

**Gygis alba.
Lestris, sp. inc.
Puffinus, sp. inc.
——, sp. inc.
——, sp. inc.
Phaeton æthereus.
—— flavirostris.
Dysporus cyanops.
*—— sula.

The four species marked with an asterisk were observed by Mr. T. Peale on the Gilberts during Wilkes's U.S. Exploring Expedition, and the two marked with two asterisks are mentioned by G. R. Gray as occurring there.

Although my ornithological efforts look rather poor, I am otherwise very well satisfied with my investigations and collections. I have sent home thirty-two large cases of specimens, and among them a fine ornithological series. As I hope soon to visit the Carolines, I expect to be able to do more in my beloved branch of science, and to give greater satisfaction to my ornithological brethren.

XLIII.—Archæopteryx macrura, *an Intermediate Form between Birds and Reptiles*. By CARL VOGT, Professor in the University of Geneva[†].

(Plate XIII.)

IN 1861 Hermann von Meyer, the distinguished palæontologist, described, in Bronn and Leonhard's 'Jahrbuch,' a Bird's feather found in the lithographic slate of Solenhofen, in Bavaria, belonging to the Upper Jurassic deposits. To the Bird revealed by this feather he gave the name of *Archæopteryx lithographica*.

Many of the learned believed it to be a skilful falsification. At that time the existence of Birds in the Jurassic epoch seemed as unlikely as that of Mammals in the Triassic.

Doubts were soon dispelled by Prof. Owen's memoir, published in the 'Philosophical Transactions' for 1863. Herein he described, as he alone knows how to do, a slab found by Dr. Häberlein, a physician at Pappenheim, which showed with remarkable clearness the hind-quarters of the Bird whence, doubtless, came the feather described by Herr von Meyer. The pelvis, the legs, the long tail furnished with feathers were grandly preserved ; but, except the wing-feathers, which were disordered, and some loose and dislocated bones belonging to the anterior extremities, all the rest of the skeleton was wanting. Prof. Owen himself compared the remains preserved in the slab to those of a sea-bird cast upon the shore, after all the fleshy parts had been eaten by carnivorous animals.

[†] Read at the Saint-Gall Meeting of the Congress of Swiss Naturalists, and translated from the 'Revue Scientifique,' sér. 2, ix. p. 241 (13th Sept. 1879).

In spite of these defects, the slab was bought for a very considerable sum by the British Museum, Mr. Waterhouse having been sent to Pappenheim for that purpose. Prof. Owen, I hardly know why, changed the specific name from *lithographica,* given by Herr von Meyer, to *macrura,* struck, as he was, by the considerable length of the tail.

Three or four years ago the son of the late Dr. Häberlein found a slab which he suspected, from seeing one of the leg-bones, to contain a second example of *Archæopteryx.* He succeeded in splitting the slab so as to have on one of its halves the whole animal, and on the other its impression. Very skilful in such work, he succeeded in disengaging almost the whole skeleton from its bed, and offered it for sale, together with a very remarkable collection of Solenhofen fossils, containing twenty-six drawers of beautiful specimens (Algæ, Insects, Crustaceans, Cephalopods, Fishes, and Reptiles), to the number of at least three hundred.

The collection, of which the *Archæopteryx* was the principal ornament, was sold for 36,000 marks to Herr Volger, Director of the Freie Deutsche Hochstift at Frankfort-on-the-Main. The contract expressly stipulated that no reproduction by modelling, photography, drawing, or any other process should be permitted before payment had been made in full. Seals having been placed on the collection, Herr Volger carried off the principal slab to Frankfort.

Herr Volger nursed the hope that the Emperor William would buy the specimen to preserve it to Germany. His Majesty did not enter into these views. Ah ! if, instead of a bird, a petrified cannon or gun had been concerned !

After having resumed possession of his treasure, Herr Häberlein addressed himself to me, in the hope that the Museum of Geneva would be able to acquire the collection at the much reduced price of 26,000 marks. This sum, otherwise suitable, much exceeding the resources of the Museum, it was necessary to let it go.

However, about the end of March last, I went to Pappenheim to see the collection. Having only one morning at my disposal, I was unable to make a thorough investigation, though what I saw filled me with enthusiasm. I promised Herr Häberlein to do all I could to obtain the price asked, and to help the sale, so that the specimen could be studied by everybody. Herr Häberlein has entrusted me with a photograph of the natural size, with the condition that I should not permit any reproduction whatever of it *.

The animal preserved in the slab is of the size of a Ring-Dove. The remains described by Prof. Owen belong to the same species, but to an example greater by a fifth.

The new specimen is entire. The head, neck, trunk, and hind-quarters are placed in profile, the head bent backwards, so that its top nearly touches the back. The wings, united at the shoulder-girdle, are spread as if for flight. The anterior extremity of the head and the pelvis are still embedded. The left leg is only disengaged so as to show half of its length, the femur and the upper half of the tibia being covered by the feathered thigh of the right leg.

The head is small, pyramidal, the top nearly flat, the occiput obliquely truncated. It is much compressed, and the anterior extremity not wholly disengaged. The orbit is large, with the nostril in front of it. By means of a lens two little conical and sharp teeth are perceived at the end, planted in the upper jaw. On the lower surface a forked bone is seen behind. I dare not say whether this is the lower jaw, which in that case would be very slender and weak, or whether it is the tongue-bone, developed as in the Woodpeckers. An elaborate study, and one requiring much time and care, would be needed to

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* [The photograph (Pl. XIII.) accompanying this paper was taken after the specimen had passed out of Herr Häberlein's hands.—Ed.]

describe the bones of the head, but what one sees shows clearly that it is a true Reptile's head.

Behind the occiput, on the first cervical vertebra, a long spinal apophysis, directed backwards, seems to be visible. It perhaps bore a crest, like that of the Iguanas, traces of which, one thinks, may be perceived.

I count, in an uncertain way, it is true, eight cylindrical cervical vertebræ. They are furnished with ribs, very fine, but easily recognizable, and directed backwards.

The neck, as a whole, must have been very movable. In this example it is bent in the form of a horse-shoe, the convexity formed by the ventral surface. Its length equals that of a Pigeon of the same size.

The dorsal vertebræ appear to be ten in number. They are thick, short, as broad as high, and have no spinal apophyses. The ribs which are attached to them are very fine, thin, curved and pointed at the end, like surgeons' needles, and show no flattening nor trace of uncinate processes, as in Birds. There are some very fine sternal ribs, which seem fixed to an abdominal linear sternum.

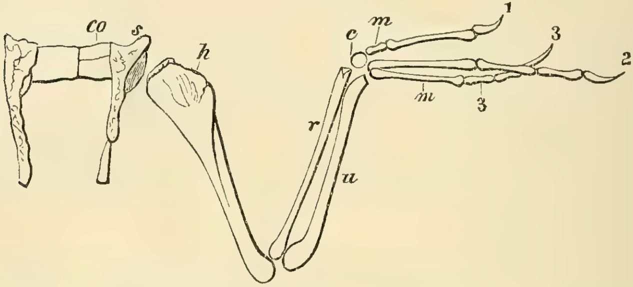
The pelvis, most part of which is preserved in the London specimen, is in this still embedded.

The tail is very long, and its whole length preserved. However, it only shows the vertebræ of its anterior half completely preserved. A fracture of the slab crosses the terminal feathers of the tail at the third of their length.

Prof. Owen has very well proved that the pelvis, as well as the hind-limb, entirely bear the stamp of the structure of a Bird by the reduction of the fibula, by the fusion of the tarsals and metatarsals into a single bone, and by the feet possessing four toes, of which one is placed behind. These parts are much better preserved in the London slab than in the present, in which some of the toes are wholly hidden. It would therefore add nothing to our knowledge of these parts, if it did not make quite certain that the fibula is wholly united to the tibia, and is only rendered perceptible by a slight longitudinal furrow. This structure can be affirmed, the right tibia showing it by its outer, and the left by its inner surface.

The fore limb (fig. 1), bearing the wing-feathers, is undoubtedly the most interesting. The two wings are flatly extended in the position of flight, the joints twisted so that the ulnar side, to which the remiges are attached, is turned backward. The two limbs composing the shoulder-girdle present their dorsal aspect; the body has come away from the girdle and is turned backward with the head and neck. Thus the hollow inner surface of the shoulder-girdle, that which is presented to the intestines, is seen.

Fig. 1.



Fore-limb of *Archæopteryx*, from above. Half the natural size.

I admit that I have had much trouble in clearing up the structure of the shoulder-girdle, and I am not sure that I have guessed right.

In our example there is seen only a median plate, slightly concave, 7 mm. long and 12 mm. wide, which looks a little like the throat-piece that soldiers formerly wore. This plate is split exactly in the middle, and I believe that this fissure is a symphysis; but I am not sure, for a similar split, evidently the result of a fracture, is observable in the right half of the bone.

Two long bones, a little twisted, and projecting very much, directed backwards and upwards, are attached laterally to the sides of this median plate. They have been somewhat injured by the splitting of the slab; but if they were brought into their normal position opposite the trunk they would lie longitudinally above the ribs, parallel to the vertebral column.

The somewhat flattened glenoidal head of the humerus articulates at the point where these bones meet the median plate.

These two bones may thus be taken for scapulæ (fig. 1, *s*), formed nearly as in Pterodactyls and Birds.

If this determination be right, one has to ask what is become of the other bones of the shoulder-girdle—the coracoids, the clavicles, and the sternum.

The London slab shows the two scapulæ wholly detached. Prof. Owen has described besides an injured bone, having the form of a hook, which in that slab is entirely isolated, calling it the furcula. In our specimen we see no trace of this furcula, so characteristic of Birds. It is possible that this bone may remain in the counter-slab, or that it may be lost; but either supposition seems to me hardly probable. I incline rather to think that the bone Prof. Owen calls the furcula is rather the pubis, which, in our specimen, is still hidden in the matrix. Here are the facts on which I rely:—

The pelvis described by Prof. Owen is only rudimentary, and consists, according to him, of parts of the iliac and ischiatic bones united around the acetabulum. The pubis is wanting. Whether, he says, "it has retained its individuality in *Archeopteryx*[*], or has been broken away from the part of the ilium indicative of the place of its original attachment and relations to the acetabulum, I cannot determine. So far as the appearance of the pelvis can be discerned and, by me, interpreted, they give no evidence of a reptilian structure." I believe that Prof. Owen would not now formulate an opinion so positive, when we know better the pelvis of the Dinosaurs, so like that of Birds.

By examining the pelvis of the Pterodactyls, and especially of the *Rhamphorhynchi*, I am come to the conviction that the bone described by Prof. Owen as the furcula ought to be the pubis. Andreas Wagner described and figured the pubis of the *Rhamphorhynchi* in the Memoirs of the Academy of Munich (viii. 1862, pls. 6, 17). He says, "The two pubic bones are united into a single bone, long, curved, and twice bent angularly." One would take these bones for a furcula if one had not seen them in position, and if one did not know positively that the Pterosaurs had no furcula.

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[*] [It is to be noted that throughout his memoir Prof. Owen preserves this erroneous spelling of the word *Archæopteryx*.—Transl.]

The pubis being missing from the London slab, the furcula from ours, otherwise so perfect, and Prof. Owen's supposed furcula being wholly detached and broken, I accordingly believe (considering the remarkable agreement of the Pterosaurs) that it is the broken pubic bone which Prof. Owen described, that the *Archæopteryx* was, like the Pterodactyls, unprovided with clavicles, and that it had the pubis consolidated into a single bone. Further examination of our slab can alone decide this controversy.

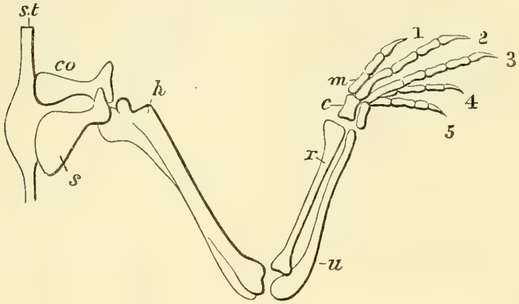
Dismissing the clavicles, the coracoids and sternum remain. One or the other must be wanting in *Archæopteryx*, for neither the London slab nor the new one allow of both these bones being found.

The first thought which offers itself is that the median plate, extending between the two scapulæ in our specimen, must be the sternum. In that case the coracoid would be wanting.

Now the coracoid (*co*) is never wanting in Reptiles and Birds. With the scapula, it is the most important, I would say the most normal, portion of the shoulder-girdle in all the Sauropsids that are furnished with fore-limbs. While the clavicles (*f*) and the sternum (*st*) may become rudimentary, or even fail completely, the coracoid always unites with the scapula in forming the humeral joint.

The shoulder-girdle of the Crocodiles and the Pterosaurs partly corresponds with the simple structure that we suppose *Archæopteryx* had. The shoulder-girdle of the Crocodiles, detached from the trunk and placed in the position of that of our *Archæopteryx*, shows (fig. 2) coracoids, long, flat, and widened above, turning back round the ventral face of the thorax, so as to be attached to both sides of a sternum elongated into a very fine point, and widening only behind the meeting surfaces. The upper rounded side of the coracoid is united to the scapula by very tight ligaments, and in the posterior angle of their junction is hollowed the articular cavity of the humerus, in which the scapula takes the greater share.

Fig. 2.



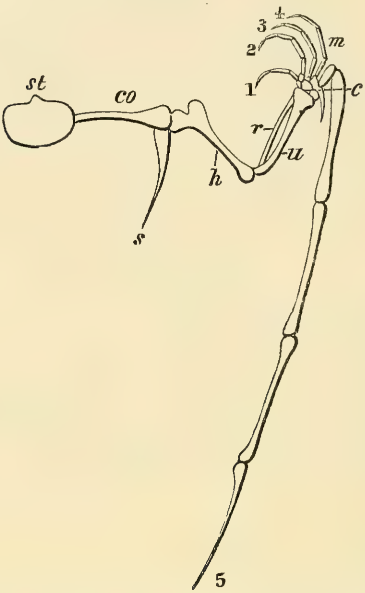
Fore-limb of Crocodile.

If we were to suppose the scapulæ straight and elongated, sabre-shaped instead of triangular, and the narrow part of the sternum reduced to nothing, so that the two coracoids could meet in the median line, we should have the shoulder-girdle of *Archæopteryx*.

Now the first of these conformations is realized in the Pterodactyls, where the scapulæ are like those of Birds, while the sternum is widened in the shape of a shield (fig. 3). On the other hand the reduction of the sternum is found in the Ichthyosaurs and the Plesiosaurs. The scapula of these animals is long and straight, but directed vertically from below upwards, while that of Birds, of Pterosaurs, and of *Archæopteryx* runs parallel to the vertebral column. On the other hand, in the Halosaurs the two coracoids meet by symphysis in the middle line; the sternum is wanting, but there is an episternum, which, in its turn, fails in *Archæopteryx*. The Ichthyosaur has clavicles, which are wanting in the Plesiosaurs.

I come, then, to the conclusion that the shoulder-girdle of *Archæopteryx* is that of a Reptile, that the furcula and the sternum, widened into a buckler and bearing a keel (so characteristic of all Birds except the Ratites), were completely wanting in it, and that the other bones, both in their combination and their form, offered characters which are found in the Halosaurs, the Pterosaurs, and the Crocodiles.

Fig. 3.



Fore-limb of *Rhamphorhynchus*. Natural size.

The humerus (*h*), the ulna (*u*), and the radius (*r*) have already been described with remarkable sagacity by Prof. Owen. The humerus, with its flattened articular head, offers some likeness to that of the Crocodiles. It bears no trace, any more than does the femur, of a pneumatic foramen, and nothing indicates the pneumaticity of the other bones, which is, however, established in the Pterosaurs. The bones of the fore-arm are separate throughout their whole length, and the ulna is stouter than the radius. Otherwise these bones offer no characteristic feature peculiar either to Reptiles or to Birds.

The manus presents some peculiarities which must necessarily have escaped Prof. Owen, in whose specimen there were only its scattered and imperfect remains.

The carpus (*c*), as Prof. Owen rightly says, shows only a single spherical bone. Birds and Crocodiles have two carpals, one on the side of the radius, the other on that of the ulna. Some of the Ratites with rudimentary wings, such as the Cassowary and Apteryx, have only a single carpal; and, as that character is combined with the rudimentary or nullified clavicles, we find in it some resemblance to *Archæopteryx*. I do not know whether the single carpal occurs in the Dinosaurs, for *Compsognathus*, the only one of them whose entire skeleton has been left to us, seems to have had the carpus in a cartilaginous state.

Prof. Owen assigns four digits to the manus. According to him, some scattered bones indicate that, besides those which bore the remiges, there were two slender digits, moderately long, and armed with curved, flattened, and sharp claws.

Relying on these facts (which are partly supposed, for he did not find the bones which bore the remiges), Prof. Owen discusses the difference between the manus of Birds, Pterosaurs, and the *Archæopteryx*; and, having proved that the latter had no extraordinarily elongated digit, as in the Pterodactyls, he continues :—" But besides the negative evidence, the positive proof of the ornithic proportions of the hand or pinion, of the existence of quill-feathers, and the manifest attachment of the principal ones, or 'primaries,' to the carpal and metacarpal parts of a short terminal segment of the limb, sufficiently evince the true class-affinity of the *Archeopteryx**."

Prof. Owen only knew, as we have just said, some scattered small bones of the manus. Prepossessed by the resemblances which connect the fossil with Birds, he readily supposed that the missing bones were constructed as in them. However, when our specimen shows all the bones of the fore limbs in their normal relative positions, equally to one another as to the feathers, we can affirm that the manus of *Archæopteryx* can neither be compared to that of a Bird nor of a Pterosaur, but only to that of a tridactyl Lizard.

In fact our specimen has on each manus three long slender digits, armed with claws, hooked and sharp-edged. The radial digit or pollex (1) is the shortest, the other two are nearly of equal length, but the second is longest. These two digits were evidently united by tendinous and close aponeuroses; for in each manus these digits are placed in the same way, the one overriding the other. The pollex is composed of a short metacarpal (*m*), a pretty long phalanx, and of a terminal claw-bearing phalanx; the other two digits have, besides the metacarpal, three normal phalanges.

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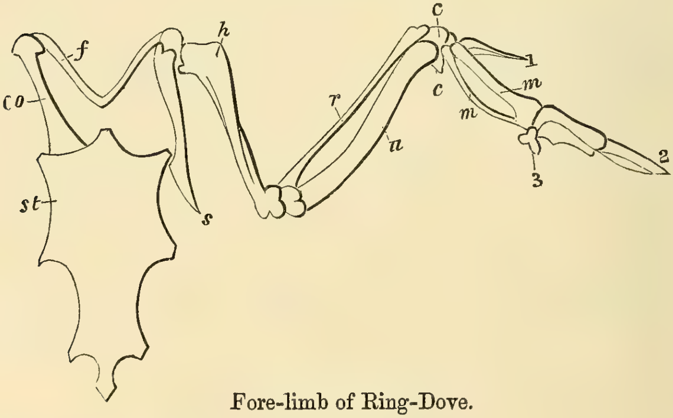
* [See former note.—TRANSL.]

The remiges were fixed to the ulnar side of the fore-arm and manus, though no special adaptation to this end can be observed in the skeleton. The pollex was free, like the other two digits, and bore no bastard-wing. If, in imagination, we could for a moment remove all the feathers, we should have before our eyes the tridactyl manus of a Reptile, such as *Compsognathus* and many other Dinosaurs seem to have had, to judge from their foot-prints. I assert that no naturalist, on being shown the skeleton of *Archæopteryx*, alone and without the feathers, could suspect that this animal had been in its lifetime furnished with wings.

The manus of *Archæopteryx* cannot be compared to that of a Bird. In the latter (fig. 4) the pollex (1)—sometimes wanting, as in *Eudyptes*—is placed at the base of the metacarpus and directly on the carpus; its single segment sometimes bears a spur or a nail; the metacarpus is formed of two

Fig. 4.



Fore-limb of Ring-Dove.

bones that coalesce at their extremities, but sometimes still separate, as in *Eudyptes*. This characteristic metacarpus bears two digits—one, the longest, with two phalanges; the other, often rudimentary, with one phalanx. Both these digits are flattened, unprovided with nails, and united together by ligaments, so as to be immovable. The manus of the Bird is adapted to bear the remiges, that of the *Archæopteryx* is not so in any way.

We can here sum up the facts as regards the skeleton. The head, the neck, the thorax with the ribs, the tail, the shoulder-girdle, and the whole fore-limb are plainly constructed as in Reptiles. The pelvis has probably more agreement with that of Reptiles than with that of Birds. The hind-foot is that of a Bird. Reptilian affinities therefore prevail, in the skeleton, over all others.

There remain the feathers. Here, no doubt, there are Bird's feathers, with a median shaft having barbs perfectly formed. The horny substance of the feathers has vanished, but the model in the fine paste of the lithographic stone is so perfect that the smallest details may be studied with the lens. The new slab shows all the feathers in their place.

The remiges of the wings are fixed to the ulnar edge of the arm and to the manus; they are covered for nearly half their length with a fine filiform down. None of them project beyond the others; the wing is rounded in its outline, like that of a Fowl.

It is possible that at the base of the neck there was a ruff, like that of the Condor. Some traces of it are perhaps visible.

The tibia was clothed with feathers for the whole of its length. The *Archæopteryx* thus wore breeches, as do our Falcons, to the legs of which its own leg bears, according to Prof. Owen, the most resemblance.

Each caudal vertebra bore a pair of lateral rectrices.

All the rest of the body, the head, neck, and trunk were evidently naked and unprovided with feathers. No traces of either down or feathers are there to be seen, though such would certainly have been found in a slab which has preserved the fine down in its smallest details. It thus follows that the restorations of the animal hitherto attempted are wholly erroneous.

After what we have just set forth, it would be quite superfluous to discuss the question whether *Archæopteryx* should be ranked among Reptiles or among Birds. It is neither one nor the other. It forms an intermediate type of the most marked kind, and confirms, in a brilliant way, the views of Prof. Huxley, who has united Birds and Reptiles, to form of them, under the name of Sauropsids, a single great section of Vertebrates. *Archæopteryx* is doubtless one of the most important guide-posts on the road followed by the Class of Birds in more and more differentiating itself from the Reptiles, whence it has drawn its origin. Bird in its integument and its feet, *Archæopteryx* is Reptile in all the rest of its organization, and its structure can only be understood by admitting the evolution of Birds by a progressive development from certain types of Reptiles. The Cretaceous Birds, so well described by Prof. Marsh, form a further guide-post upon this road, since they still keep their teeth, though nearly the whole of their organization has already conformed to the type of Birds.

But it concerns us to discuss a little more precisely the halting-places of this progressive evolution, and also to give some account of the way in which adaptation for flight has acted on different parts of the body.

Besides the power of flying, Birds are yet distinguished from most Reptiles, the Dinosaurs excepted, by their vertical position on their hind limbs alone.

In a paper published some time ago (Westermann's 'Illustrirte deutsche Monatshefte,' xlv.), I tried to prove that the adaptation of Vertebrates to flight is not necessarily combined with their adaption to an upright position, and also that the transformation of the hind-limbs, so far as to become the sole props of the body in walking, is wholly independent of the transformation of the fore-limbs to the end of becoming wings. The freeing of the fore-limbs from their function of props while at rest or in walking can, in fact, be attained in two ways, entirely opposite. In the one case they are shortened, so as to become useless or serviceable only as organs of prehension; in the other they are lengthened, so as to become organs of flight.

In Vertebrates we see the tendency to an upright position developed in Dinosaurs and Birds among the Sauropsids, and among Mammals in Kangaroos, Jerboas, and the Anthropomorphs, including Man. It is to be remarked that this tendency is, without doubt, very ancient: Dinosaurs appeared so early as the Triassic beds, and Kangaroos, since they are Marsupials, may make us believe that some of the Jurassic Marsupials—resembling the Kangaroo-rats (*Hypsiprymnus*) in their dentition—may have already shown the peculiar structure of animals that leap. Anyhow, the tendency is shown by the greater fixity and solidity of the pelvis, which is made up of a greater number of sacral vertebræ, by the increased length and thickness of the leg-bones, and lastly, except in the Anthropomorphs, by the progressive diminution in the number of the digits, which, on the other hand, become thicker and longer. The Anthropomorphs alone form an exception from this point of view; and the diminution in the number of digits being a general law for derivative types, we may say that they are, as regards these members, conservative beyond all others. As for the rest, this diminution, which carries with it that of the tarsal and metatarsal bones, is constantly shown.

The adaptation to flight is wholly independent of an upright position. The Pterosaurs and Bats, beyond question excellent fliers, prove this proposition in a decisive way. Both have the hind-feet very weak, short, furnished with slender digits, which are quite separate and armed with claws. We have only to observe the difficulty with which a Bat walks to convince ourselves directly that it could never hold itself upright on its hind-limbs; and comparing the skeleton of a Pterodactyl or of a *Rhamphorhynchus* with that of a Bat, we shall be directly persuaded that the Pterosaurs were well able to cling to any thing by their hind feet, but never to hold themselves upright. The structure of the hind-limbs, as seen in the Dinosaurs, in *Archæopteryx*, and in Birds, is therefore independent of the power of flight, and only relates to that of supporting the body on the hind-feet alone.

Now I believe I have shown in the above-mentioned article that all the characters whereon are based the consideration of Dinosaurs to be regarded as the ancestors of Birds are only related to the development of the power of keeping an upright position upon the hind-feet. Thanks especially to the labours of American naturalists, we now know that the feet of the Dinosaurs had but three digits, with the indication, sometimes, of a fourth; also that these animals walked upright, as shown by their numerous foot-prints, formerly attributed to Birds, and that their pelvis resembled that of Birds. On these principles they had then a resemblance to Birds and to the *Archæopteryx*; but the known skeleton of *Compsognathus* and other recognized facts show us that this development of the hind-feet was combined, as in the Mammals that leap, with a more or less considerable shortening of the fore-feet, which is in direct contradiction to the adaptation for flight, demanding, as that does, an elongation of the fore limb. Certain Dinosaurs, perhaps, perched like the *Archæopteryx* and Birds; but they were not more in the road to adaptation for flight than are the Tree-kangaroos of the New-Guinea forests (*Dendrolagus*), which also perch, in spite of their feet being adapted to leaping.

As to the adaptation for flight, we see it act in two directions, wholly distinct, according as the surface opposed to the air is formed by an extended membrane or by feathers. The manus of Pterosaurs and Bats obeys the mechanical conditions of the extended membrane, that of Birds is modified with a view to the remiges. These are, especially, the forms of manus which show the fundamental differences arising from different mechanical conditions

The shoulder-girdle in all flying animals exhibits a construction fit to ensure great fixity, united with considerable mobility, but limited as to the extent of movement. This fixity is due, in the first place, to the development of the coracoid, and, secondly, to that of the scapulæ and the clavicles. The sternum takes a notable part therein by developing considerable surfaces for the attachment of muscles. Sometimes it is a rounded buckler, as in *Rhamphorhynchus*, sometimes a keel, as in the Bats, or a combination of both, as in Birds, where the union of the three bones, coracoid, scapula, and furcula, forms an immovable pyramid, bearing the arm-joint on its summit. The humerus is a little elongated; but it becomes very thick and presents powerful muscular ridges. The fore-arm is still more elongated. If one of the two bones of the fore-arm becomes rudimentary, as in the Bats, the other gains in length and thickness. In general, the anterior extremity in all flying animals is elongated altogether, which is in direct opposition to its conformation in animals that leap, such as the Dinosaurs, where it is shortened. If Birds' wings seem to us short, it is because of their articulations bent in an extreme zigzag; and we may easily convince ourselves, either by measuring or extending them, that, when extended, the wings reach the ground in nearly all Birds, except the long-legged Waders, if the body be put in the position which it takes in a quadruped.

If all these conformations are common to all flying animals, differences begin to show themselves at the carpus. The animals that fly by means of an extended membrane preserve the primitive number of five digits, these digits being always elongated and slender; while in those that fly by means of feathers the number of digits is reduced by the union of some with others, either by symphysis or very strong ligaments—carpus and metacarpus following these modifications of the digits. Both these methods of adaptation, so different, and even so opposite, thus depend on the nature of the integuments with which the surface opposed to the air is furnished.

Let us first examine adaptation to flight by means of an extended membrane.

In the Flying-squirrels (*Pteromys*), the *Galeopithecus*, and in some Marsupials (*Petaurista*) we see all the digits free and armed with claws. The skin, covered with hair, and extending in folds between the fore- and hind-limbs, only serves as a parachute, and not as an active flying-membrane.

We now know, by the discovery at Solenhofen of some perfectly preserved wings of Pterosaurs, that their wing was formed by a stiff membranaceous border, finely folded and rather narrow, attached to the exceedingly elongated fifth digit, and extending to the anterior part of the body without reaching the hind-feet. I have before me a photograph, of the natural size, of the wing of *Rhamphorhynchus gemmingki*, which shows this structure most conclusively. After these discoveries, we may say that all the restorations of Pterosaurs found in books are wrong. The other digits, four in number, are slender, free, and armed with sharp-edged claws; while the fifth digit, so strong and so elongated, to which the membrane is attached, bears no nail at all.

In the Bats, four digits are fine, elongated, pointed at the end, and arranged like the ribs of an umbrella, while the fifth, the thumb, is free, short, and alone armed with a claw.

Step by step I have followed the development of the wing in the embryos of Bats. At first the manus of these animals is formed exactly like that of all other Mammals with five digits, and is so like the pes that it is difficult to distinguish the two limbs when they are separated from the body. The embryonic tissue wholly envelops the digits, which do not protrude from the circumference of the primitive disk. Later the various parts are differentiated; but while at the anterior extremity the membrane which unites the digits follows them as they by degrees are lengthened, behind it stops on the feet, where the digits become free by passing through it. The flying-membrane of Bats is thus no new structure, but only the primitive membrane uniting the digits developed equally with them.

We have, then, three stages of adaptation to flight by means of a membrane.

The first is represented in the volant Squirrels and Marsupials: the skin of the body is alone concerned, the skeleton taking no part in it: the organ of flight is still passive. As soon as it becomes active, osseous parts are needed as supports on the one hand, and on the other muscles to put the levers in motion. Furthermore, arrangements for extending or folding the flying-membrane are necessary. We thus see on the one hand a corresponding modification of the shoulder-girdle, which is the supporting point around which the muscles are disposed, and on the other hand a modification of the digits. In the Pterosaurs, which were, no doubt, weak fliers, there was only a single digit employed. In the Bats four digits are made use of, and only one, the thumb, keeps its original nature.

The series of halting-places in the progressive adaptation for flight by means of feathers is less complete.

Everybody knows the bony framework of the Bird's wing (fig. 4). The sternum is very large, and commonly furnished with a keel; the coracoid is very strong; the clavicles are united together to form the furcula; the humerus is often, and the fore-arm always, elongated; the carpus is formed by two insignificant bones only; the only two metacarpals are united together; and only one long stiff median digit is developed, while the two other digits are rudimentary or may even be wholly wanting. The elongation, with the view of gaining space for the insertion of feathers, the reduced number of digits, the greater fixity of the wing-joint, and the establishment of considerable surfaces for the insertion of muscles characterize this modification, which reaches its utmost in the Birds which are good fliers.

The halting-place of *Archæopteryx* may be in some measure compared with that of *Galeopithecus* in the former series. It is, however, a step further forward in the march of adaptation. The number of digits and the single carpal depart from the normal structure of Reptiles. The digits, without doubt, are altogether of the most decidedly Reptilian conformation; but they are reduced to the normal number possessed by Birds, and the middle digit is the longest of the three. Modification thus begins to be perceptible in the skeleton, and is not confined to the skin only, as in the Flying-squirrels; but this beginning is so weak and so insignificant that one might have doubts about it had the feathers not been preserved. *Archæopteryx,* without doubt, enjoyed the faculty of active flight; but, judging from its weak shoulder-girdle, its reduced sternum, and the slender ridges of its humerus, it must have been but a bad flier. Its tail, so long and so weak, must have been rather a drag than a rudder; and its short rounded wings may perhaps have been sufficient to accomplish short distances, but would not have allowed considerable flights.

The Jurassic *Archæopteryx* doubtless forms a bond of union between Reptiles and the *Odontornithes,* or Birds-with-teeth, of the Cretaceous deposits of America, so admirably described by Prof. Marsh. But we must not forget that a very considerable gap exists between these two types, and that a series of successively modified forms, after *Archæopteryx,* with its dominant Reptilian characters, is needed to reach the *Odontornithes,* among which, except some secondary points in the structure of their vertebræ, the only Reptilian character is the presence of teeth in both their jaws. To sum up, *Archæopteryx* may be regarded as a Reptile flying by means of feathers and perching with the legs of a Bird, while the *Odontornithes* are true Birds, possessing in their skeleton some traces recalling their Reptilian origin. It would doubtless be rash to wish to reconstruct from imagination these intermediate forms—the more rash, seeing that the *Odontornithes* themselves present different forms, showing different stocks, as Prof. Marsh has demonstrated.

We may be yet more embarrassed when we concern ourselves with seeking the direct ancestors of *Archæopteryx.* We wish to see in it an immediate descendant of the *Compsognathus,* found in the same Solenhofen beds; and we forget that ancestor and descendant cannot be contemporaries. Prof. Gegenbaur, in his 'Manual of Comparative Anatomy,' unites *Compsognathus* and *Archæopteryx* in one subclass of Sauropsids, which he calls *Saururi.* It is true that they both have the long Saurian tail; but can one unite a Reptile having no trace of feathers, furnished with very short fore feet, and hind-feet formed like those of Reptiles, except some approximation to those of Birds—in a word, a leaping Reptile having the form of a Kangaroo—and the *Archæopteryx* which we have just been analyzing?

Nor can I familiarize myself more with the view of Prof. Huxley, who sees the ancestors of Birds in the Dinosaurs taken as a whole. I have already remarked that the elongation of the anterior extremities is an indispensable condition of the faculty of flight, and that the Dinosaurs, on the contrary, show the same shortening of these fore-limbs that we observe in animals that leap.

It is true that the Dinosaurs exhibit in the structure of their pelvis, their tarsi, and their digits many approximations to Birds. It is also true that the embryo of Birds shows that the single metatarsal comes from the fusion of the tarsals and metatarsals, which are originally separate, as in Reptiles. We therefore acknowledge here a genetic line, proved by both phylogeny and ontogeny; and we do not hesitate to say that the legs of the Dinosaurs form the bond of union between that of Reptiles, strictly so called, and that of Birds.

But there our genetic line stops, and if we consider the fore-feet we see no approximation. A mere stump renders flight impossible. In my opinion, a genetic line starting from the Dinosaurs could only reach the Ratites. Now we have many indications that this is a very ancient group. A host of points in their anatomy approximates them, more than any other known group of living Birds, to the Reptiles. The *Hesperornis*, of the American Cretaceous deposits, is, according to Prof. Marsh, an aquatic Ostrich, having the keelless sternum and the rudimentary wings of a Ratite. This view, the reasons of which I have just pointed out in a very summary way, without being able to explain them, would compel consequences opposed to the opinions now received. If we adopt it we must see in the wing of the Ratites, not a Bird's wing become rudimentary through disuse, but, on the contrary, an organ which, owing to its origin, has not yet been able to become a perfect wing. We must also see in it the fore foot of a Dinosaur, developed with a view to the organization of a Bird, but tainted with the original fault of being too short and too small, so as to hinder it from becoming an organ of active flight. The Ratites, far from being a degenerate group proceeding from Birds that fly, would be, on the contrary, a primitive group which has not been able to reach active flight.

A second consequence of this view would be the polyphyletic origin of the class of Birds. The Dinosaurs would lead to the Ratites, the *Archæopteryx* to the Birds that fly. Notwithstanding the uniformity in the structure of Birds, broken, it is true, by the Ratites, the class would have at least two stocks in two different groups of ancient Reptiles. At first sight this conclusion appears offensive; but, since many other facts lead us to similar inductions, we cannot repel it *à priori*.

After having refuted the genealogical relations of the Dinosaurs to the *Archæopteryx,* while accepting them as possible with regard to the Ratites, we may ask if we find among the fossil Reptiles anterior to the Upper Jurassic beds, forms which can be allied to the *Archæopteryx,* and through it to the Birds that fly. I must confess that it would be impossible for me to answer this question; I believe even that for a long while we shall not be able to satisfy it. We know only very few complete skeletons of these ancient Reptiles; the limb-bones, and especially those of the digits, are very rare, and nearly always detached. To this difficulty another is added.

As I have already remarked, it would be impossible to suspect, from an examination of the skeleton alone, that the *Archæopteryx* bore feathers. Its adaptations with a view to plumage are so little visible that we could not have taken them for such, had not the calcareous rock of Solenhofen, with its fine grain, preserved the very lightest impressions. Let us suppose for an instant that there had only been found the skeleton of *Archæopteryx,* without any trace of plumage. Would any one have seen in it a flying animal? By no means. One would have seen in it a walking Reptile, high in the legs, like the Chameleons. The anatomist bold enough to assert that this animal had been endowed with the power of flight, and relying for that purpose on the structure of the hind-legs, would have been quickly refuted by considerations drawn from the fore-feet.

But, thanks to the exceptional fineness of the paste of the lithographic stones, the feathers are found, attached to the manus and tail of a Reptile, and to the leg of a Bird. Who, then, could deny the existence of feathers, more or less developed, or more or less rudimentary, in many of the ancient Reptiles, of which we have only found the skeletons or detached bones, embedded in a coarser matrix and one incapable of preserving delicate imprints? I believe I have proved, from what goes before, that the adaptation for flight proceeds from without inwardly, from the skin to the skeleton, and that the latter may be wholly unaffected when the former has already reached the development of feathers. Must we not admit that *Archæopteryx*, whose skeleton has undergone such slight modifications, contrasted with the luxuriant development of feathers, has been preceded by forms of terrestrial Reptiles whose skeleton had undergone no change, among which forms, instead of perfect feathers, there existed only the stumps of rudimentary feathers, such as at present are shown by the embryo of Birds in the egg? The cutaneous structures being destroyed by fossilization in the midst of a coarser matrix, what means would remain for us to recognize in a terrestrial Lizard with a normal skeleton the traces of a rudimentary plumage in the course of development?

To support these considerations I have no need here to recall to mind that the homology between the scales, warts, spines, and other cutaneous structures in Reptiles on the one hand, and the feathers of Birds on the other, has long since been recognized (see Gegenbaur's 'Manual of Comparative Anatomy'), and that all these Reptilian structures differ in nothing from the wart-like stumps which appear in the embryo of Birds as the first traces of plumage—that the Bird's feather is only the Reptile's scale further developed, and that the Reptile's scale is only a feather that has kept the embryonic stage. There can thus be no doubt that the feathers of *Archæopteryx*, so fully developed as they are, must have been preceded, in other, older Reptiles, by cutaneous structures representing the different degrees of embryonic development of the feather. We must therefore picture to ourselves the ancestors of the *Archæopteryx* as terrestrial Reptiles in the form of Lizards, having feet with five hooked and free digits, showing no other modification of the skeleton, but having the skin furnished, in different places, with elongated warts, down, and rudimentary feathers, unfit for flight, but allowing for further development in the course of generations.

Here I stop. Having made a very imperfect study of the original slab, which requires the most thorough examination, I have only been able to make observations based on inspection of its photograph. But I hope to have shown you that our fossil, unique of its kind, is worthy of the most serious study, by means of which a crowd of questions of the highest scientific interest may be solved. You will, however, find the wish I form very legitimate; it is that this specimen, when it leaves the hands of its present owner, may pass into the possession of an institution or museum where it will be accessible to all who wish to make a thorough study of it.

XLIV.—*Description of a new Genus and Species of Owl from the Seychelles Islands.* By Canon H. B. Tristram, F.R.S.

(Plate XIV.)

It is with somewhat of the feelings of a poacher unprotected by the new Ground-Game Act, that I venture to intrude on a domain so sacred as that of the Mascarene Islands, which Professor Newton and his brother have established as peculiarly their own, and which they seemed to have so thoroughly exhausted. But the temptation is as irresistible as a stray Falcon to a keeper in the close season longing for an excuse to discharge his piece; and I can only, in mitigation of judgment, express my hope that it will not be long before I receive a second specimen of my prize, wherewith to enrich the Professor's unique collection.

I have been lately in correspondence with a gentleman who was making a sojourn in the Seychelles from the

Mauritius, and who had sent me a few weeks back a series, nearly complete, of the birds known from the Seychelles. On 17th May I received from him by post a supplementary parcel, which left the Seychelles on 26th April, containing the skin of a freshly-killed Owl, which, although the eyes, brain and flesh of the wings and legs had not been removed, having been well plastered with arsenical soap, reached me in perfect order.

My correspondent in his accompanying letter informs me it is the first he had ever seen or heard of, though the inhabitants recognized it under the name of "Sciu," a name evidently adopted from its note, and not a bad representation of the cry of the Scops Owl. I have no further information than that it is from the wooded mountains of Mahé. The bare feet and tarsi, which protruded through the envelope, at once told me that I had secured a new species. This has been confirmed by a careful comparison with the species of the genus *Scops* in the British Museum and in the superb collection of Messrs. Godman and Salvin. In general coloration it closely resembles *Scops magicus* and its allies from the Eastern Archipelago, and *Scops rutilus* from Madagascar, but is much larger than the latter. Its closest ally, however, is *Scops nudipes* from Central America, in which species the tarsus is bare for half its length. It differs, however, from all other Owls of the Scops group :—(1) by the fact that its ear-tufts, if any, are only rudimentary; and (2) by its tarsi wholly unfeathered, excepting a narrow line for about a quarter of an inch down the front of the tarsus, while the back of the joint is entirely bare. And I venture to think that these differences entitle it at least to subgeneric, if not generic, rank.

This bird is especially interesting as being the first living species of Owl discovered in any of the Mascarene Islands, though the family was probably represented formerly in all of them. We know, however, only of one species—the *Carine murivora* of Rodriguez, of which the memory has been preserved by Leguat, and of which the bones have been so beautifully figured in the recent volume (168) of the

'Philosophical Transactions' by Messrs. Günther and E. Newton. It is an interesting speculation what may have been the affinities between the Owl of Rodriguez and that of Seychelles; and we may hope that the acquisition of a skeleton of the latter will enable us to solve the problem. Meanwhile it is worthy of note that Messrs. Günther and E. Newton repeatedly remark on various points of affinity between *Carine murivora* and the genus *Scops*. They state that it shows a combination of osteological characters not found in any of numerous skeletons of Striges with which they have compared it. The form of the pelvis differs from that of all other Owls, and in one point resembles *Scops rutilus,* to which our bird bears a strong superficial resemblance. Again, there are modifications in the foramina for the sacral nerves, which closely resemble those of *Scops rutilus*. Then, again, the length and strength of its legs is greater in proportion to its size than in any other species of Owls. The strength and massiveness of the tarsus and foot in our new species is one of its most striking characteristics. It is surely, then, not improbable that further knowledge of its anatomical structure may enable us to group the species of the two islands together, and that *Carine murivora* may prove to be another species of our proposed genus. I venture to propose for this bird the name of *Gymnoscops insularis,* nov. gen. et spec.

GYMNOSCOPS, nov. genus.

Ear-tufts rudimentary; tarsi and feet unfeathered.

GYMNOSCOPS INSULARIS, nov. spec. Ex insulis Seychellarum.

Above dark chestnut; the feathers on the head irregularly mottled with black and pale fawn-colour; the neck dappled with black and isabel-colour, but without any streaks; the feathers on the back barred with the same, and with black lines down the shafts, many of the upper wing-coverts having their outer web light isabel-colour; the secondaries with the shafts black and ribbed with sandy rufous towards the outer edge of both webs; the primaries brown-black on the inner web, and barred with various shades of chestnut and buff on the outer, very feeble towards the tips, which are mottled on both webs with brown and chestnut; the tail brown, thickly mottled, and faintly barred with chestnut; lores and sides of face very light chestnut, the feathers delicately fringed with brown; basal plumes black-tipped; ear-tufts rudimentary, and scarcely to be detected; under surface of the body light chestnut, richly mottled and irregularly barred with white, and arrow-shaped black streaks down the centres of the feathers; under tail-coverts buffy white, with a pale rufous bar near the end, and white tip; the under wing-coverts pale buff; the underside of the primaries dark brown, and the inner webs of the secondaries light buff; feathering of the legs short and close, of rich rufous chestnut and faint blackish bars and spots; tarsi very strong, and entirely bare, excepting a very narrow line of plumage for a quarter of an inch from the joint in front; the whole of the back part of the joint to the end of the tibia entirely bare; tarsi and feet clear amber-colour, and very strong and stout; claws brown at the base, black at the tip; bill horn-colour, with the tip of the upper mandible dark brown. Total length 9·75 inches, wing 6·8, tail 3·2, tarsus 1·4, middle toe with claw 1·45.

Mahé, Seychelles Islands, April 1880.

XLV.—*Remarks on two Species of* Halcyon.

By E. L. Layard.

(Plate XV.)

Halcyon juliæ, Reich., from Ansevata, in New Caledonia. There must be some error here! It *must* be a young example of *H. sancta*. Our bird never has the inside of the wing *white*; in *H. juliæ* and *H. chloris* it is always so in the adults, and more or less so in the young. We have splendid specimens of *H. juliæ* exactly according with Mr. Sharpe's plate and descriptions, from Aneiteum, Tanna, Vate, and St. Bartholomew, New Hebrides—also *H. chloris* from Vate or Sandwich Island, which we believe is a new habitat; at least we have no record of the species being found so far south. Both these species are considerably larger than *H. sancta*; and unless the Ansevata bird comes fully up to the measurements given by Mr. Sharpe in his monograph, we should hardly be inclined to accept its being an example of *H. juliæ*.

We have a solitary specimen of a King Hunter from the Solomon Islands (Makira harbour, we believe) that almost accords with *H. vagans*, Less., from New Zealand, but with no other of our specimens. It is, however, rather more blue in tint, and the underside of the tail-feathers darker, the light spot in front of the eye is larger, and the bill is also larger.

It can at once be distinguished from *H. juliæ, H. chloris,* and *H. sancta* by the absence of the well-marked supercilium and the rich colour of the underparts. In these it exactly accords with *H. vagans*,—the coloration of which, by the way, in Mr. Sharpe's plate is not at all well rendered, the real tint being a warm cinnamon-colour; under wing-coverts cinnamon-red, as in *H. vagans*. If these differences should be constant, we can hardly suppose that it is merely a race of *H. vagans*, Less., and propose to bestow on it the appellation of *H. tristrami*, in honour of our friend and fellow-worker in Polynesian ornithology.

[*Note.*—I have since received from Mr. Layard three specimens of this bird, which, both from its size and coloration, must be different from any species hitherto described. In this opinion Mr. Sharpe concurs.—H. B. TRISTRAM.]

XLVI.—*Note on* Pachycephala assimilis *of J. Verreaux and O. Des Murs*. By E. L. and E. L. C. LAYARD.

WE have long been puzzled by not finding the *Pachycephala* (*Muscicapa*) *xanthetræa* of Forster, having in our eye the coloured figure in the 'Cruise of the 'Curaçoa,'' p. 376, pl. 12, and having long since satisfied ourselves that the ruddy-coloured species which we find about Noumea was none other than *P. assimilis* of MM. Verreaux and Des Murs. Lately, however, in reading over the description of the former (*loc. cit.*), we were struck with the discrepancy between it and the coloration of the figure given; and on comparing specimens of *P. assimilis* with the description, it at once became apparent to us that this title must sink into a synonym, the two being identical.

Mr. G. R. Gray, in his "List of New-Caledonian Birds," P. Z. S. 1859, p. 162, says that *P. xanthetræa* was found at the "Island of Nu," and notes specimens being in the British Museum.

Isle Nu, as is well known, forms part of the harbour of Noumea; and it is not likely that, small as it is, and so close to the mainland, it should possess a *Pachycephala* of its own. During a visit paid to it we saw *P. assimilis*, V. & D. M. (?), in several places; and in our three years' residence in Noumea only two species of *Pachycephala* have occurred to us in this neighbourhood—*P. moriariensis** and *P. assimilis*.

If the specimens still remain in the British Museum, a solution of the question is easy enough; and we hope Mr. Sharpe will kindly compare examples of *P. assimilis* with them and set the matter at rest.

MM. Verreaux and Des Murs describe ('Revue Zoologique,' 1860) both male and female of *P. assimilis*; so there is no doubt as to the species they indicate; and from their omitting all reference to the habitat of *P. xanthetræa*, simply stating that specimens were in the British Museum, it is probable that they attributed that name to a species they fancied they had not seen. Their description of *P. assimilis*, however, accords well with that given in the 'Cruise of the 'Curaçoa.'' With Forster's original description we are not acquainted.

Noumea, September 1st, 1879.

[*Note.*—On comparing specimens in the British Museum, I find that Messrs. Layard's conjecture is borne out by the facts.—H. B. TRISTRAM.]

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* By a *lapsus calami* we wrote *P. xanthetræa* for this species in describing our first day's collecting in New Caledonia (Ibis, 1877, p. 357).

XLVII.—*Notes on a 'Catalogue of* Accipitres *in the British Museum' by* R. Bowdler Sharpe (1874). By J. H. Gurney.

(Continued from p. 329.)

Mr. Sharpe has united the genera *Baza* and *Avicida* under the former title; and it seems to me that the distinction between these two genera is sufficiently slight to make their fusion permissible, though it should be mentioned that Mr. Ridgway has expressed a contrary opinion in his 'Studies of Falconidæ,' p. 153; but, agreeing in this respect with Mr. Sharpe, I differ from the course which he has adopted in including the genus *Baza* amongst his "subfamily Falconidæ." In common with several previous writers, I look upon *Baza* as belonging to the group Pernes, and as constituting the concluding genus of the very extensive Milvine subfamily to which this group is, in my view, attached. In connexion with this subject, I may quote the following remarks on the osteology of *Baza madagascariensis* from the important work of MM. Milne-Edwards and Grandidier on the birds of Madagascar, vol. i. p. 75:—"Cette étude détaillée des caractères ostéologiques du *Baza madagascariensis* montre que cet oiseau diffère trop complètement des Faucons pour pouvoir prendre place dans la même famille, qu'il ressemble bien plus aux Milans et aux Boudrées, et que si la forme de sa tête osseuse et de son appareil sternal n'était pas toute spéciale, on pourrait le considérer comme appartenant au genre *Pernis*."

The genus *Baza* seems to me to assort itself into four natural subdivisions:—the first consisting of *B. cuculoides* and *B. verreauxi*; the second of *B. madagascariensis*; the third of *B. subcristata, B. reinwardti, B. rufa, B. erythrothorax, B. magnirostris, B. ceylonensis,* and *B. sumatrensis*; the fourth of *B. lophotes,* which, it may be mentioned, is the type of the genus.

It may be observed that the first of these subdivisions comprises the two African species, the second that which is limited to Madagascar, the third the Australian and Oceanic races, whilst the fourth consists of a species inhabiting India and the Malay countries; it ought, however, to be noted, as a modification of this distribution, that *B. lophotes* occurs in Ceylon, whilst *B. ceylonensis* and *B. sumatrensis* have been obtained on the continent of Asia—a circumstance to which I shall have to refer in treating of those species.

I propose to adhere to the order in which I have enumerated the several species in the few remarks which I shall make respecting them.

We are indebted to Mr. Sharpe for pointing out a ready mode of distinguishing the adults of *B. verreauxi* from those of *B. cuculoides*, which I believe had not been noticed by any previous author, and which may be quoted in his own words, "under wing-coverts uniform rufous*, . . . , *cuculoides*; under wing-coverts barred with rufous and white . . . *verreauxi*." In their first plumage the two species seem to me to be undistinguishable.

Mr. Sharpe describes the type specimen of *B. cuculoides* (which is preserved in the Cambridge Museum) as "above ashy brown, with a cindery grey on the interscapulary region, the head and crest darker, and more inclining to slaty black;" but in a specimen from the river Gaboon, which is preserved in the British Museum, and which is adult, with the exception of a very narrow rufous nuchal collar, probably a relic of immaturity, the slaty-black hue is not confined to the head, but extends generally over the mantle, with the exception of the concealed white bases to the feathers, the proportion of white on these feathers being greatest on the lower scapulars In this specimen the slate-colour of the mantle is decidedly blacker and less grey than is the colour of the corresponding parts in the adult of *B. verreauxi*.

Mr. Ridgway, in his remarks on the genera *Avicida* and *Baza*, to which I have already referred, has the following passage:—"*A. verreauxi* .... indentations of the tomia double; *A. cuculoides* .... indentations of the tomia single,"—as to which I may observe that in the specimens of *Baza cuculoides* which I have examined, consisting of two in the British and two in the Norwich Museum, the indentations of the tomia are double, just as in *B. verreauxi*, but in both species the hinder tooth is but little developed in very young birds*. I may add that Swainson describes the type specimen of his "*Aviceda cuculoides*" as having "two teeth on each side" of the bill (*vide* 'Birds of West Africa,' p. 104).

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* Mr. Sharpe gives a figure of *Baza cuculoides* showing the rufous under wing-coverts (*vide* pl. 11. fig. 2, of his work).

The Norwich Museum possesses a specimen of *B. cuculoides* from Bissao, which is the most northerly locality from which I have seen this species. It has been found as far southward as Landana, Loango, an immature male from thence having been recorded by Messrs. Sharpe and Bouvier in the 'Bull. S. Z. de la France' for 1876, p. 301. This specimen was noted by the collector as having "pattes et paupières jaunes, yeux jaunes verdâtres," and is fully described by Messrs. Sharpe and Bouvier, the immature plumage not having been previously alluded to by Mr. Sharpe in his Catalogue.

The most northerly specimen of *B. verreauxi* which I have seen is an adult in the the Norwich Museum from the Zambesi country; its southern range extends to Natal, but not, so far as I am aware, to the south of that colony. This species seems to be limited to the countries adjacent to the south-eastern coast of Africa, and *B. cuculoides* to those on the western coast: neither species has, I believe, ever been obtained at any great distance inland.

With regard to *Baza madagascariensis*, I may observe that, since the publication of Mr. Sharpe's volume, an important article upon that species (from which I have already quoted) has appeared in the great work on the birds of Madagascar by Milne-Edwards and Grandidier, with figures of the bird, its skeleton, and details of its osteology*.

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* A similar phenomenon occurs in *Baza lophotes*, of which species Captain Legge, in his 'Birds of Ceylon,' remarks, "In birds of the year the anterior tooth is less developed than in the adult, and the second or posterior notch is not developed."

I may also mention that a female in the Norwich Museum, which is probably not fully adult, shows on the upper part of the tail three distinct cross bars of pure white, differing, in this respect, from the specimens described by Mr. Sharpe.

Baza subcristata is the next species which I have to notice; and with respect to it I have only to remark that Mr. Sharpe gives the habitat of this species as "North Australia," but that Mr. E. P. Ramsay, in his 'Catalogue of Australian Accipitres,' p. 47, defines its range, more precisely, as extending over "the whole of the north-eastern portion of Australia, from Cape York to the Clarence River," from which I infer that it has not been obtained in the western parts of Northern Australia.

Mr. Ramsay describes the colour of the iris, which is not mentioned by Mr. Sharpe, as "bright yellow."

The next species, found to the northward, *Baza reinwardti*, is a native of New Guinea and of several of the neighbouring islands, its range extending eastward to the Solomon group†, and westward to the islands of Timor and Bouru; a list of the localities in which it has been obtained will be found in Count Salvadori's 'Prodromus Ornithologiæ Papuasiæ et Moluccarum,' p. 4; but to this list the island of Timor should be added, as specimens obtained by Mr. Wallace in that island are preserved in the British Museum‡, and recorded in 'The Ibis' for 1868, p. 18; there should also be added to the list Cape Pitt, Solomon Islands, on the authority of Mr. E. P. Ramsay*.

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* *Vide* 'Hist. Nat. des Oiseaux de Madagascar,' vol. ii. pls. 19, 20, and 21.

† "This group marks the farthest limit of many of the peculiar animal forms of New Guinea" (*vide* 'Australasia,' edited by A. R. Wallace, p. 471).

‡ The Norwich Museum contains two specimens of *Baza reinwardti* which were purchased from the "Maison Verreaux," and marked by the late M. Jules Verreaux as having been obtained in Borneo. I think it probable, however, that this is an error, as I know no instance of this species having been recorded as a native of that island.

The following notes of measurements of several specimens of *B. reinwardti* lead to the inference that the size of this species is not materially influenced, if at all, by its geographical distribution. I may add that for the dimensions here given of specimens in the British Museum I am indebted to the kindness of Mr. Henry Seebohm; the other examples enumerated have been measured by myself.

	Wing. inches.	Tarsus. inches.	Middle toe *s. u.* inches.
One from the New-Britain group, in the possession of Dr. Sclater..	12·5	1·3	1·5
Seven from North-western New Guinea, of which one is in the British and six in the Norwich Museum	11·1 to 12·5	1 to 1·4	1·2 to 1·5
One from the Fly River, New Guinea, in the possession of Mr. Whitely	12·8	1·4	1·5
One from Salwatty, in the Norwich Museum	11·5	1·2	1·2
Three from Timor, in the British Museum (marked by Mr. Wallace as males)	11·75 to 12	1·3 to 1·35	1·29 to 1·35
One from Ceram, in the British Museum	11·75	1·25	1·35
One from Ceram, in the Norwich Museum	11·9	1·3	1·3
Three from Amboina, of which two are in the British and one in the Norwich Museum	11·6 to 12·5	1·3 to 1·32	1·25 to 1·4

With the above measurements may be compared the following, taken from a female obtained on the "mainland of South-east Papua, eight miles from Yule Island," and given by Mr. Sharpe in the Journal of the Linnean Society (Zoology), vol. xiii. p. 309—"wing 12·5, tarsus 1·35."

Amongst the distinctions between the immature and the adult dress of *B. reinwardti* which are pointed out by Mr. Sharpe in his Catalogue, one leading feature is that the lower breast and abdomen are, in the young bird, "barred with blackish more narrowly than in the adult;" the widening of these dark bars, and their assumption of the slaty-grey tint, which seems to be their final colouring, is, apparently accomplished very gradually, and a similar gradual course of change probably characterizes the variations observable in the barring of the tail.

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* *Vide* 'Proceedings of the Linnean Society of New South Wales,' vol. iv. p. 66.

Mr. Sharpe, in his valuable paper on Dr. Meyer's collections of birds, published in the 'Mittheilungen des k. zool. Museums zu Dresden' for 1878, says, under the head of *Baza reinwardti*, "the young bird is distinguished not only by its browner plumage, but by its tail, which is brown, with five dark brown bars, whereas in the old bird the tail is grey, with two basal bars and one broad terminal* bar of black."

This, as a general statement, is quite correct, but some variation in the number and character of the caudal bars occasionally occurs. One young bird in the Norwich Museum has five such bars as described by Mr. Sharpe; two other immature, but more advanced specimens, in the same collection, have only four dark bars; in one of these examples the entire adult plumage has been attained, with the exception of the tail, all the feathers of which are still those of the immature dress. A fourth specimen, killed whilst moulting, only retains two immature brown rectrices, both of which are lateral and bear six dark-brown transverse bars; and it is remarkable that a new lateral grey feather also bears six bars, but of a slaty-black hue on a grey ground; the central rectrices are also new and similarly coloured, the bands upon them being two in number, besides the subterminal one. These four specimens are all from North-western New Guinea.

In one of the specimens in the Norwich Museum, said to be from Borneo, but probably incorrectly, there is but one dark bar above the subterminal band on all the rectrices, and this is imperfect on the central pair; the subterminal band is broad in this specimen, its depth being 2·8 inches.

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* This bar, perhaps, ought rather to be termed "subterminal," as it is usually succeeded by a slight pale tip to the rectrices.

A very similar specimen in the Norwich Museum, the locality of which is unknown, has also one imperfect upper bar on all the rectrices, except the two external pairs, which show two irregular upper bands; the subterminal bar in this specimen is 3·5 inches in depth. This bird also much resembles the example from the New-Britain group, recorded by Dr. Sclater in the P. Z. S. for 1877, p. 109; but there is no reason to think that it is from the same locality, as it was purchased in Paris many years since, at a period when, so far as I know, no birds from the New-Britain group had, as yet, reached Europe; M. Parzudaki, from whom it was obtained, had incorrectly labelled it "*Baza subcristata*, Australie."

The New-Britain specimen above referred to, and the only one which I have been able to examine from that locality, has three dark upper bars on the external pair of rectrices, two on the next pair, and a single indistinct one on the remainder; the subterminal band is 3·25 inches in depth.

Mr. E. P. Ramsay, in his "Contributions to the Zoology of New Guinea," published in the 'Proceedings of the Linnean Society of New South Wales,' expresses a strong opinion that specimens of *Baza* which he has seen from New Ireland are specifically distinct from an example of *B. reinwardti* that he had received from Port Moresby in New Guinea; but the latter specimen is not, as it seems to me from the description given of it, an adult one, and I much doubt whether the differences mentioned by Mr. Ramsay can be considered specific; thus Mr. Ramsay remarks that in the Port-Moresby bird the primaries "are banded right across on all," but that in his New-Ireland specimens "the primaries are not crossed altogether." I have, however, seen specimens from localities other than New Britain or New Ireland in which the upper transverse bars on the primaries are imperfect. Again, the cross-barring on the thighs observed by Mr. Ramsay in his Port-Moresby specimen is only an occasional variation, and is absent from the majority of New-Guinea specimens. Mr. Ramsay, in his notes on the zoology of the Solomon Islands, to which I have already referred, has the following entry under the head of *Baza reinwardti*:—"One specimen, exactly agreeing with the Port-Moresby birds, from New Guinea, Loc. Cape Pitt."

Mr. Sharpe includes amongst the synonyms of *Baza reinwardti* "*Lophastur jerdoni*, Blyth, J. A. S. B. xi. pt. 1, p. 464, and xv. p. 4;" but I cannot think that Blyth's description warrants this identification. The description seems to me to accord better with *Baza erythrothorax* than with any other species, but perhaps differs in the greater extension of the mesial throat-line, which is said to have existed in Blyth's adult specimen on the "throat, fore neck, and breast," whilst in the younger bird it is described as traceable "almost to the vent."

I have carefully examined the throat-mark in the specimens of *B. erythrothorax*, four in number, in the Norwich Museum, and find that in three of them the mesial line does not descend lower than the throat, but in the fourth (a male from the Sula Islands) an imperfect trace of it exists as low as the centre of the upper breast.

I know not whether Mr. Blyth's type specimens of his "*Lophastur jerdoni*" are still in existence, and fear that such may not be the case; but if they are still to be found, a re-examination of them would be extremely desirable.

As specimens of *B. erythrothorax* are rare in collections, it may be worth while to subjoin some measurements taken from those in the Norwich Museum.

	Wing. inches.	Tarsus. inches.	Middle toe *s. u.* inches.
No. 1. From the Sula Islands, marked ♂ by Mr. Wallace	11·1	1·2	1·4
No. 2. From the Sula Islands, also marked ♂ by Mr. Wallace, but perhaps incorrectly	12·0	1·2	1·45
No. 3. From Macassar, marked ♀ by Mr. Wallace	12·0	1·2	1·3
No. 4. Exact locality and sex unknown	12·0	1·2	1·5

Mr. Sharpe describes *B. erythrothorax* as having a "black head and dark cinereous ear-coverts." Nos. 2 and 3 in the foregoing list agree with this description; but in Nos. 1 and 4 the fore part of the crown of the head is rufous, with a blackish-brown shaft-mark to each feather, and the ear-coverts are rufous rather than cinereous.

Mr. Sharpe figures, on plate 10 of his volume, both *B. erythrothorax* and *B. magnirostris**; and I believe he is correct in considering these nearly allied races specifically distinct, the first being limited to the Celebes and Sula groups, and the second to the Philippine Islands, unless Professor Schlegel be correct in referring to *B. magnirostris* a *Baza* brought by Diard from Pontianak, in Western Borneo, which is figured in the 'Valk-Vogels,' pl. 28. fig. 5, and as to which Professor Schlegel remarks, under the head of *Baza magnirostris*, in his Supplement to the 'Museum des Pays-Bas,' Accipitres, p. 135, "Je rapporte notre individu de Borneo à ceux des Philippines." Judging from the figure in the 'Valk-Vogels,' I think it not impossible that this Bornean specimen may belong to a race nearly allied both to *B. magnirostris* and to *B. erythrothorax*, but not identical with either.

Another race, closely allied to *B. magnirostris*, but, I think, specifically distinct, is Captain Legge's very interesting *Baza ceylonensis*, which he has described at length in his work on the 'Birds of Ceylon,' where it is also excellently figured. This species, which was discovered by Captain Legge subsequently to the publication of Mr. Sharpe's volume, has, as yet, only been met with in the island of Ceylon, with the exception of a single immature specimen procured by Mr. Hume from the Wynaad district of South-eastern India, and recorded in 'Stray Feathers,' vol. vii. p. 151, and vol. viii. p. 445.

Mr. Sharpe, on pl. 11 of his Catalogue, gives a figure of an immature specimen of the very scarce *Baza sumatrensis,* a species which was only known as occurring in the island of Sumatra till Mr. Hume, in vol. iii. of 'Stray Feathers,' p. 313, described two older birds—a male obtained in the extreme south of the Tenasserim provinces, and a presumed female from Native Sikhim. Mr. Hume was, in the first instance, doubtful as to the identity of these specimens with *B. sumatrensis*; but the doubt was subsequently removed by a comparison of the Tenasserim specimen with one from Sumatra, preserved in the British Museum, as recorded in 'Stray Feathers,' vol. viii. p. 444.

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* Mr. Sharpe, in his list of synonyms of *B. magnirostris*, includes "*Pernis madagascariensis*, Kaup, Contr. Orn. 1850, p. 77;" but the word "*madagascariensis*" is here inserted by an oversight, as the specific name used by Kaup is "*crassirostris*."

The measurements of both sexes are noted in Mr. Hume's article above referred to, and they lead to the inference that the specimen in the British Museum must be a male, though marked as a female by Mr. Wallace.

There only remains to be mentioned one other known species of the genus *Baza,* the beautiful *Baza lophotes,* as regards which I would refer to the latest and, in some respects, the fullest account which has been published respecting it, viz. that given in Captain Legge's 'Birds of Ceylon,' where, amongst other matters, the interesting subject of its geographical distribution is carefully discussed. An important note on this species, as observed by Mr. Davison in Tenasserim, ought also to be mentioned, and will be found in 'Stray Feathers,' vol. vi. p. 24.

XLVIII.—*On the Nesting in Confinement of the Snowy Owl.*

By J. H. Gurney.

In 'The Ibis' for 1875, p. 517, I recorded what I believe to be the first known instance of the nesting in confinement of the Snowy Owl (*Nyctea scandiaca*), and of the successful rearing of some of the young birds, thus produced, in the aviary of Mr. Edward Fountaine of Easton, in Norfolk.

In 'The Ibis' for the current year, p. 144, I further recorded that a female bird, one of those thus reared in 1875, had mated with a male that Mr. Fountaine had purchased, and had laid eggs during the summer of 1879, which did not prove fertile. The same female has during the present year been more successfully paired with another male obtained by Mr. Fountaine, and the result was a clutch of eight eggs, which were laid at the following dates, viz. 21st, 23rd, 25th, 27th, 29th, and 31st May, and on the 2nd and 5th June, and of which six were hatched on the 24th, 26th, 28th, and 30th June, and on 1st and 5th July. The latest hatched nestling disappeared on 6th July; and Mr. Fountaine is of opinion that it must have died and been devoured by one of its parents, and that the like fate overtook the two unhatched eggs which disappeared at the same time.

Some days subsequently to this catastrophe, the nestling which was hatched on 1st July died, and that which was hatched on 26th June committed suicide in a pan of water which was supplied for the use of its parents.

By the kind permission of Mr. Fountaine I visited the three surviving nestlings on 19th July, and was glad to find them flourishing, with the exception of some injury which one of them had suffered from a blow inflicted by the talons of its mother when irritated by the removal from the aviary of the nestling which was drowned.

The first-hatched nestling assumed the dark slate-coloured down when 15 days old, the second at the age of 14 days, the third at that of 13 days, the fourth when 11 days old, and the fifth when 10 days old.

Mr. Fountaine's servant, who has the care of these Owls, and has carefully watched their changes, informed me that the nestlings are nude when hatched, and that the covering of white down makes its appearance at the end of the second day from the date of hatching.

He had, by desire of Mr. Fountaine, particularly watched one of the nestlings whilst changing from the white to the dark slaty brown: he observed the white down beginning to fall off about 10 o'clock one morning, and by 5 P.M. on that day it had nearly all fallen off, leaving the bird almost bare; but by 6.30 A.M. on the following day the nestling was well covered with the new dark-coloured down, which Mr. Fountaine considers to be of a somewhat coarser texture than the white down that precedes it.

XLIX.—*Notices of recent Ornithological Publications.*

[Continued from p. 373.]

70. *Cory's 'Birds of the Bahamas.'*

[Birds of the Bahama Islands; containing many Birds new to the Islands, and a number of undescribed winter plumages of North-American Species. By Charles B. Cory. 4to. Boston: published by the Author, 8 Arlington Street. 1880.]

This handsome volume gives an account of Mr. Cory's experiences in the Bahamas, and a descriptive catalogue of the birds hitherto found there, with notes on their habits, migrations, and nesting. Mr. Cory has added several species to the list of Bahaman birds, which now number 149, and has discovered one which he considers new to science, *Ardea cyanirostris*, allied to *A. leucogastra*. The following species are figured:—

Crotophaga ani.
Mimocichla plumbea.
Spindalis zena.
Saurothera bahamensis.
Ardea cyanirostris.
Phœnicopterus ruber.
Dafila bahamensis.
Sterna anæstheta.

71. *De Selys-Longchamps on the Classification of Birds.*

[Sur la Classification des Oiseaux depuis Linné.—Discours prononcé à la Séance publique de la classe des Sciences le 16 décembre 1879, par M. de Selys-Longchamps. 8vo. Bruxelles: 1879.]

An essay on the various classifications of the Class of Birds propounded since the first edition of the 'Systema Naturæ.' Many of them are given in considerable detail, and especial attention is called to Sundevall's 'Tentamen.' The author seems to adhere to his own scheme propounded in 1842 ('Faune Belge'), but gives a *résumé* of the principal emendations he would make in it after forty years' experience.

72. *Finsch on the Birds of Western Siberia.*

[Reise nach West-Sibirien im Jahre 1876. Auf Veranstaltung des Vereins für die deutsche Nordpolarfahrt zu Bremen unternommen von Dr. O. Finsch, Dr. A. Brehm, und Karl Graf von Waldburg-Zeil-Trauchburg. Wissenschaftliche Ergebnisse. Wirbelthiere. Bearbeitet von Dr. Otto Finsch. Verh. d. k.k. zool.-botan. Gesell. Wien, 1879.]

This paper contains an account of the collections made by Dr. Finsch and his companions during his well-known Siberian expedition of 1876. Of birds, examples of 283 species were obtained, concerning which we have many excellent field-notes. Certainly the occurrence of *Tetraogallus himalayensis* (p. 125) in this part of Siberia is difficult to be explained; but we believe there is no doubt that the species has been correctly determined.

73. *Gould on two new Humming-birds from Bolivia.*

[Description of two new Humming-birds from Bolivia. By John Gould, F.R.S. Ann. & Mag. N. H. ser. 5, v. p. 488.]

Both these birds are figured in the first part of Mr. Gould's supplement to the Trochilidæ, noticed below. *Cynanthus bolivianus,* the first species, is a close ally of *C. mocoa,* and, according to Mr. Elliot (Ann. & Mag. N. H. ser. 5, vi. p. 232), not to be distinguished from that bird. *Pinarolæma buckleyi* belongs to a new genus allied to *Lampornis* and *Oreotrochilus,* but has a long wing, strongly curved lengthened bill, broad tail-feathers, and extremely small feet. Both species were obtained by Mr. C. Buckley in Bolivia.

74. *Gould's 'Supplement to the Trochilidæ.'*

[Supplement to the Trochilidæ or Humming-birds. By John Gould, F.R.S. Part I. Folio. August 1, 1880.]

It is the usual fate of any one who writes a monograph to see on the completion of his work a host of novelties brought before him, but too late to be included in his book. This has been eminently the case with the Trochilidæ. Since Mr. Gould finished his magnificent five-volume folio, some twenty years ago, new Humming-birds, remarkable both for their peculiarity and beauty, have been arriving from America till the number of these additional species now reaches fifty or sixty. Anxious to bring his work to the standard of the present time, and undeterred by serious illness, Mr. Gould has very naturally commenced a Supplement to his monograph of the Trochilidæ, which is to be completed in four parts, and in which most of the discoveries of late years will be figured.

Part I. contains figures of the following birds :—

Thalurania hypochlora.
Hylonympha macrocerca.
Sparganura glyceria.
Zodalia ortoni.
Cynanthus bolivianus.
Microchera parvirostris.
Elvira cupreiceps.
Oreonympha nobilis.
Lophornis adorabilis.
Lampornis calosoma.
Aglæactis caumatonota.
Pinarolæma buckleyi.

75. *Gould's 'Birds of New Guinea.'*

[The Birds of New Guinea and the adjacent Papuan Islands, including any new Species that may be discovered in Australia. By John Gould, F.R.S. Part XI. February 1880.]

The species figured in this part are as follows :—

Chætorhynchus papuensis.
Pitta cyanonota.
Gymnophaps pœcilorrhoa.
Ptilopus fischeri.
Epimachus ellioti.
Sauromarptis gaudichaudi.
Halcyon nigrocyanea.
Halcyon stictolæma.
Chlamydodera orientalis.
Megacrex inepta.
Sittella albata.
Artamides temmincki.
Micrœca assimilis.

Of these we would call especial attention to *Megacrex inepta,* a gigantic Rail of New Guinea, the colour of which recalls the South-American genus *Aramides,* but whose wings are so much atrophied as to render the bird incapable of flight.

76. *Harvie-Brown on the Shiant Islands and their Bird-life.*

[The Shiant Islands and their Bird-life. By J. A. Harvie-Brown. Trans. Norf. & Norw. Nat. Soc. iii. pp. 47–60.]

Mr. Harvie-Brown visited this little group of islands in June of last year. They are rather difficult of access, and lie about twelve miles north of Skye. Fourteen species of birds were observed, four only of which were Passeres, the greater part of the rest being sea-birds, several species resorting to these islands in large numbers to breed.

77. *Harvie-Brown and Cordeaux, 'Report on the Migration of Birds.'*

[Report on the Migration of Birds in the Autumn of 1879. By J. A. Harvie-Brown and John Cordeaux. Zoologist, 1880.]

This report gives the result of observations made by the keepers of lighthouse stations on the east and west coasts of Scotland and the east coast of England, to whom forms were sent by the authors to be filled in. The points on which information was chiefly sought relate to the date and time of day each species was seen, the force and direction of the wind, the nature of the weather, and other matters of interest. Messrs. Cordeaux and Harvie-Brown are doing excellent work in collecting these observations, and are laying a sound basis for deductions on the extremely interesting subject of the migration of birds.

78. *Jones and Shultze, 'Illustrations of the Nests and Eggs of the Birds of Ohio.'*

[Illustrations of the Nests and Eggs of the Birds of Ohio, with Text. By Genevieve E. Jones and Eliza J. Shultze. Parts I.–IV. Folio. Circleville, Ohio: 1879–80.]

This work, we are informed, was planned by Miss Jones, whose death occurred before the second part was issued. Its continuation is now carried on by her mother and her brother, to whom we are indebted for the parts now before us. That no pains have been spared upon this work is evident at first sight. The drawings of the nests are very carefully done, and are the best representations of bird's nests that we have ever seen; the figures of the eggs, too, have been prepared with great skill. The nests of the following birds are included in the four parts:—

Icterus baltimore.
Turdus mustelinus.
Coccygus erythrophthalmus.
Cyanospiza cyanea.
Agelæus phœniceus.
Tyrannus carolinensis.
Quiscalus purpureus, *var.* æneus.
Turdus migratorius.
Collurio ludovicianus.
Sayornis fuscus.
Thryothorus ludovicianus.
Sialia sialis.

79. *Ober's 'Camps in the Caribbees.'*

[Camps in the Caribbees: the Adventures of a Naturalist in the Lesser Antilles. By Frederick A. Ober. 8vo. Edinburgh: 1880.]

Mr. Ober, the Smithsonian collector, whose discoveries in Antillean ornithology we have frequently had occasion to refer to, has published under the title above given an account of his adventures in the West Indies during the prosecution of his researches. Various interesting notices of birds will be found interspersed in the narrative, *e.g.*, notes on *Chrysotis augusta* (p. 112), *Myiadestes sibilans* (p. 199), and *Quiscalus luminosus* (p. 247). Mr. Lawrence's papers on the author's collections of birds are given in an appendix.

80. *Pascoe's 'Zoological Classification.'*

[Zoological Classification; a handy book of reference, with Tables of the Subkingdoms, Classes, Orders, &c. of the Animal Kingdom, their Characters, and Lists of the Families and principal Genera. By Francis P. Pascoe, F.L.S. &c. Second edition, with Additions and Glossary. 12mo. London: 1880.]

This is a useful little book, the scope of which is sufficiently explained in the title-page given above. In the portion relating to the birds (pp. 210–237) a short description of the class is given, and a brief sketch of recent systems that have been proposed. That adopted in the work is Sundevall's, but to it are added notes, chiefly relating to different orders.

81. *Reichenow and Schalow's 'Compendium.'*

[Compendium der neu beschriebenen Gattungen und Arten. Von Ant. Reichenow und Herman Schalow. Parts I. & II. J. f. O. 1879, pp. 308, 420.]

Under this title the authors propose to republish in the

'Journal für Ornithologie' the characters of all newly described species of birds. In these days, when the number of periodicals and scientific journals is increasing so fast all over the world, the compendium, if kept up to date, will form a most useful work. Two parts are already issued.

82. *Ridgway's 'Revisions of the Nomenclature of certain North-American Birds.'*

[Revisions of the Nomenclature of North-American Birds. By Robert Ridgway. Proc. U.S. Nat. Mus. 1880, pp. 1–16.]

In this paper a number of recent changes of the nomenclature of North-American birds are noted and others made. At present we see no signs of any abatement of the state of unrest which has long afflicted this subject, but we suppose an end of it must come sooner or later; but what with the introduction of trinomials, and the consequent rearrangement of the names of many birds, we do not see that this end is near. Mr. Ridgway's paper contains descriptions of several new races. *Perisoreus canadensis fumifrons* (p. 5) is a race of *P. canadensis* found in Alaska, *Stria nebulosa alleni* (p. 8) one of *S. nebulosa* from Florida, and *Siurus nævius notabilis* (p. 12) one of *S. nævius* from the Black Hills, Wyoming. Two new generic names are also proposed, one, *Phalænoptilus* (p. 5), for *Caprimulgus nuttalli*, and the other, *Momonyx* (p. 15), for *Anas* sive *Erismatura dominica*. There is also a long note on *Myiarchus mexicanus* and many others too numerous to mention here.

83. *Salvadori on the Genus* Porphyrio.

[Di alcune specie del genere *Porphyrio*, Briss. Nota di Tommaso Salvadori. Atti d. R. Accad. Sci. Torino, xiv. p. 1165.]

A criticism on some points in Mr. Elliot's recently published essay on the species of *Porphyrio* ('Stray Feathers,' vii. p. 6), referring especially to *P. cyanocephalus* and *P. calvus* of Elliot's list. For the former Count Salvadori prefers, with reason, the title *P. melanonotus* of Temminck. As regards the latter, he distinguishes from it *P. samoensis*, Peale, and perhaps *P. vitiensis*, Peale, and describes as new *P. ellioti*, based on a specimen obtained in the Admiralty Islands by the 'Challenger' Expedition, and referred by Sclater (P. Z. S. 1877, p. 556) to *P. calvus*.

84. *Salvadori on the Ornithology of Papua and the Moluccas.*

[Ornitologia dell Papuasia e delle Molucche di Tommaso Salvadori. Atti d. R. Accad. Sci. Torino, xiv. p. 1171.]

This is a short general account of Count Salvadori's great work (of which the first volume is already issued, see above, p. 255), as given to the Royal Academy of Sciences of Turin.

85. *Salvadori on* Porzana moluccana.

[Intorno alla *Porzana moluccana*, Wall., ed alla *Gallinula ruficrissa*, Gould. Nota di Tommaso Salvadori. Atti d. R. Accad. Sci. Torino, xiv. p. 943.]

Count Salvadori shows that *Gallinula ruficrissa* of Gould (Suppl. B. Austr. pl. 79) = *Porzana moluccana*, Wallace, and constitutes a second species of the genus *Amaurornis*.

86. *Salvadori on certain Species of* Collocalia.

[Osservazioni intorno ad alcune specie del genere *Collocalia*, G. R. Gray. Per Tommaso Salvadori. Atti d. R. Accad. Sci. Torino, xv. p. 343.]

The author gives a synopsis of the ten species of *Collocalia* known to him (four others remaining doubtful), besides many useful notes. A new species, *C. infuscata*, from Ternate, is based on a specimen from that island by Beccari.

87. *Sennett's Notes on the Ornithology of the Lower Rio Grande of Texas.*

[Further Notes on the Ornithology of the Lower Rio Grande of Texas, from observations made during the spring of 1878. By George B. Sennett. Edited with Annotations by Dr. Elliot Coues, U.S.A. Bull. U.S. Geol. & Geogr. Survey, v. pp. 371–440.]

This paper is an addition to the author's former paper

(Bull. iv. pp. 1–66), and contains an account of his collections made during a second visit to this interesting region, situated on the United-States and Mexican frontier. Mr. Sennett was able to add five species to the United-States fauna, all of them known Mexican birds. Of these species Dr. Coues has given very copious references, and added some valuable notes on them, as well as other species mentioned in the paper.

L.—*Letters, Extracts, Announcements, &c.*

We have received the following letter addressed to the Editors of 'The Ibis:'—

Sirs,—I am inclined to think that a notice of the occurrence of that curiously local species *Larus audouini* in (as far as I know) a new locality may possess some interest for your readers, and therefore proceed to lay some of the particulars thereof before you. As I have already mentioned the precise locality of this occurrence to several of my brethren of the B. O. U., I think that in the interests of a rare species you will excuse me from indicating it further than by stating that it is an island of the dominions of the Spanish crown in the Mediterranean, some fifty or more miles from the nearest mainland or island, and is uninhabited, except by the keepers of a lighthouse erected within the last few years. We approached this island in my aux. s.s. yacht 'Glowworm' towards the close of a fine, perfectly calm day, April 26th, 1879, having left our port, about ninety miles distant, about 9 a.m. We saw nothing remarkable on our course except an occasional passing Shearwater and a distant Gull or two; but about 4 p.m., when within a few miles of the island, we had some eight or ten of the largest Cetaceans which I have seen in the Mediterranean in full view at the same time, blowing, spouting, and playing within a mile of our vessel, and attended by many Gulls. I may mention that I had reason to expect Audouin's Gull, and that my visit to the island was principally caused by that expectation; but the Gulls in attendance on the aforesaid whales were too far off for distinct identification, though I could distinctly make out that they were of two species, one of which was the Lesser Black-backed Gull (*L. fuscus*) in full plumage. The island is, roughly speaking, about half a mile or rather more in length from the west to the east, highest at the western end, upon which the lighthouse stands, and is composed of what looks like a yellowish-red sandstone with masses of boulder-stones imbedded in the cliffs which form its sea-walls, and which average from forty to sixty feet in height above the water. We let go the anchor in about 8 fathoms some quarter of a mile from the island, on its southern side, and pulled off in our cutter to a landing-place just below the lighthouse; we spoke two men in a fishing-boat on our way, who told us that the only birds which nested upon the island were Gulls, that there was only one kind, and that there were eggs in the nests now. At the landing-place we were greeted and assisted by some half dozen of the lighthouse people, who seemed very glad to see us, and said that their provisions were running short, as they are only irregularly supplied by a sailing-boat from the mainland, and for some weeks past the weather had been so tempestuous, although this day was so calm, that they were beginning to feel anxious. The ascent from the landing-place was so rough and steep that I, having barely recovered from an attack of rheumatic gout, considered that my "strength was to sit still," and be rowed round the island; but my son, and the young Sevillano who accompanied us, jumped ashore with the ardour of youth, bent upon the exploration of unknown country, and with strict injunctions from me to shoot every bird that they could, and gather every plant that they could find. It was growing dark, numbers of Gulls were wheeling in circles high over the island, and I set off to row slowly round, with my gun across my knees. I saw a good many Gulls, but they were very wary, and not one gave *me* a shot, though I could hear my son platooning away on the flat summit of the island, which, as he afterwards told me, averages about 100 to 150 yards in width from north to south, and is rough and stony, with a thick growth of a low-growing plant. Of this he brought down a specimen, which I have lately discovered to be *Frankenia revoluta* (Forsk.), a subspecies of *F. lævis* (Linn.). I did not get a shot at any bird; in fact, besides the Gulls, the only birds seen by me were two or three Common Sandpipers, one Whimbrel, one Turnstone, a Falcon (either *F. subbuteo* or *F. eleanoræ*), and two Stilts (*Himantopus melanopterus*), evidently on their travels, and unwilling to leave their resting-place at this late hour of the day for an unknown shore. On getting back to the landing-place I was joined by the explorers. My son told me that they had seen nothing but Gulls, a Hawk, and one small bird; he had only bagged two Gulls, but killed two more, which had fallen at a distance into the sea. The two specimens of *Larus* which he had secured proved to be very fine adult Audouin's Gulls, both males, and he assured me that the two others which he had lost were exactly like them, with red bills. On our showing these birds to the lighthouse men, they solemnly declared that there was no other Gull on the island, though the Lesser Black-backed, in adult plumage, had been flying over and about them all the evening: they told me that they had some eggs, and brought down some two dozen of them to us; these were *all* decidedly eggs of either *Larus fuscus* or *L. leucophæus*, perhaps of both, but most certainly not of *L. audouini*. Our Spanish companion had also taken three eggs from a nest on the flat summit of the island, which were of the same character and size as those above mentioned. I had not expected to find eggs of *Larus audouini*, as the eleven taken on the island of Toro late in May 1874 were for the most part quite fresh, though two of them contained young birds within a few days of hatching. The small bird above mentioned proved to be a Whinchat (*Pratincola rubetra*). I was naturally much pleased at the addition of *L. audouini* to the avifauna of Old Spain, and went off to our vessel in hopes of securing a good series of specimens thereof on the morrow. But it was not to be; a very strong westerly wind set in soon after nightfall, and having strained and rolled at our chain all night in a heavy sea, which would make landing on the island highly dangerous, if not impracticable, we weighed anchor at daybreak and went off.

Mr. H. E. Dresser has, in his 'Birds of Europe,' given such an exhaustive account of the history of *Larus audouini* up to date, that it is unnecessary for me to go into details as to its habitat; but I think that there is no doubt that the headquarters of this Gull are isolated rocks of the Western Mediterranean. I do not believe that it has been, or will be, found to breed in precipitous cliffs. The cry of Audouin's Gull is very peculiar, and in the nesting-season affords a good means of distinguishing the species. On wing the most noticeable peculiarities are the great length of the wings, and of course, if near enough to be distinguished, the brilliant coral-red bill and black-looking legs and feet. I may perhaps be allowed to mention here that the two young Gulls brought from the coast of Sardinia, and presented by me to the Zoological Society in the summer of 1874 as Audouin's Gulls, have proved to be specimens of *Larus leucophæus*. I much regret this, and shall be more cautious in future in placing any faith in the asseverations of "vagrom" coral-fishing youths of Neapolitan or other Italian origin. In this connexion I may add that we found *Larus leucophæus* in some numbers, both in the early summer of 1876 and in November 1878, frequenting the harbour of Santander, and I should not be surprised at meeting with it during the next week in the neighbourhood of our present anchorage.

LILFORD.

S.S. 'Glowworm,' Dartmouth,
July 26, 1880.

Obituary.—On May 25th died, at Lagoa Santa, in Brazil, the Danish philosopher and zoologist, Dr. P. V. LUND, aged nearly 79. Born in Copenhagen, he graduated at the Copenhagen Unversity, and was intended for the medical profession. He was soon diverted from this pursuit, however, by his interest for natural science, and when, in 1825, he gained a double golden medal for some zoological prize essays, he made a definite choice between the two. Ill health made him seek a milder climate in South America; and after a short stay in Rio Janeiro he returned to Europe, travelled in Italy with J. F. Schouw, the Danish botanist, and Mr. Harewood, and spent some years in France, where he became a friend of Cuvier. In 1832 he went out again to Brazil, and thenceforward lived in the small town of Lagoa Santa, in the province of Minaes Geraes. The remarkable caves near this place, containing the fossil remains of the Brazilian fauna from the Tertiary period, were discovered by Dr. Lund; and the palæontological collections he made in them were presented by him in 1854 to the Danish State, and now form a separate and much appreciated section of the Zoological Museum of Copenhagen.

Dr. Lund also transmitted to Copenhagen many specimens of birds from the vicinity of Lagoa Santa. Prof. Reinhardt's well-known essay on the bird-fauna of the Campos of Brazil was based mainly upon Lund's collections.

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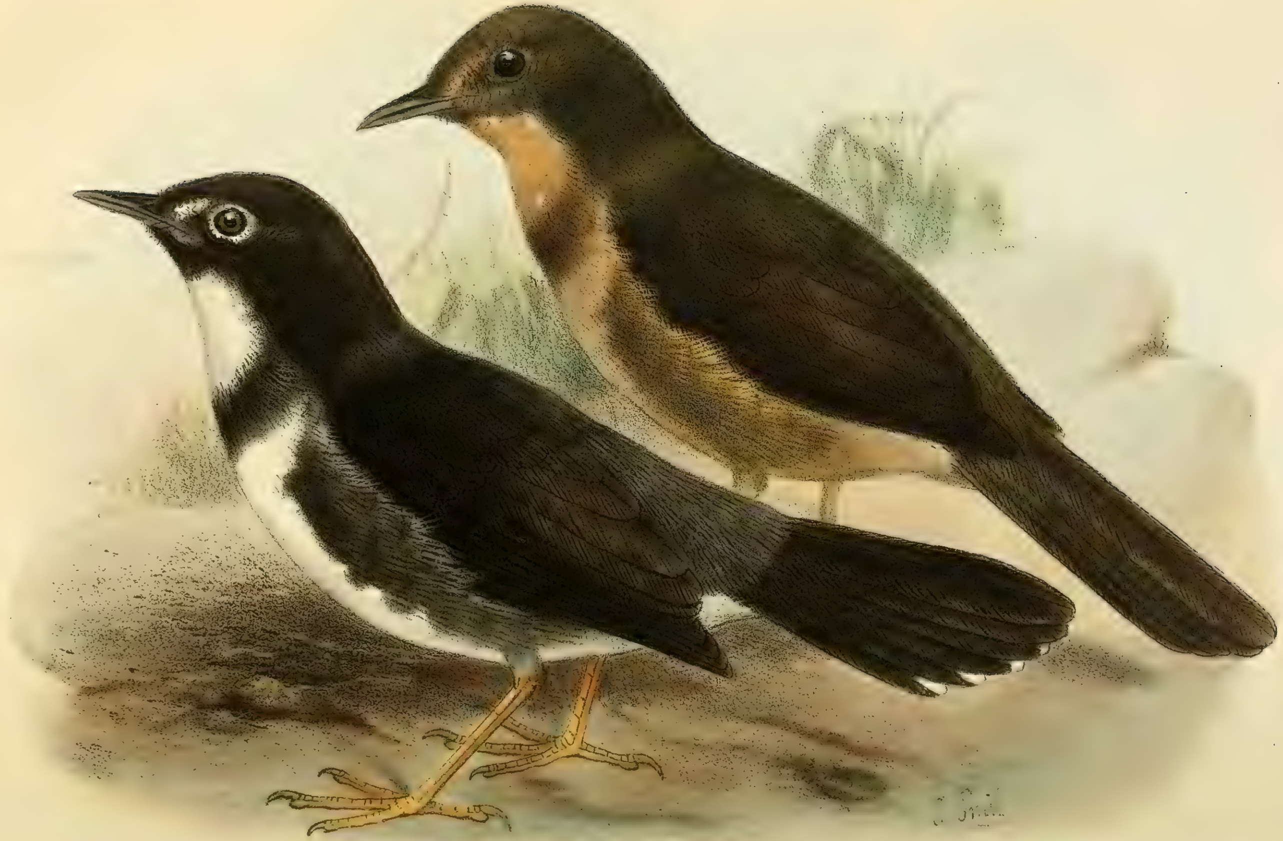

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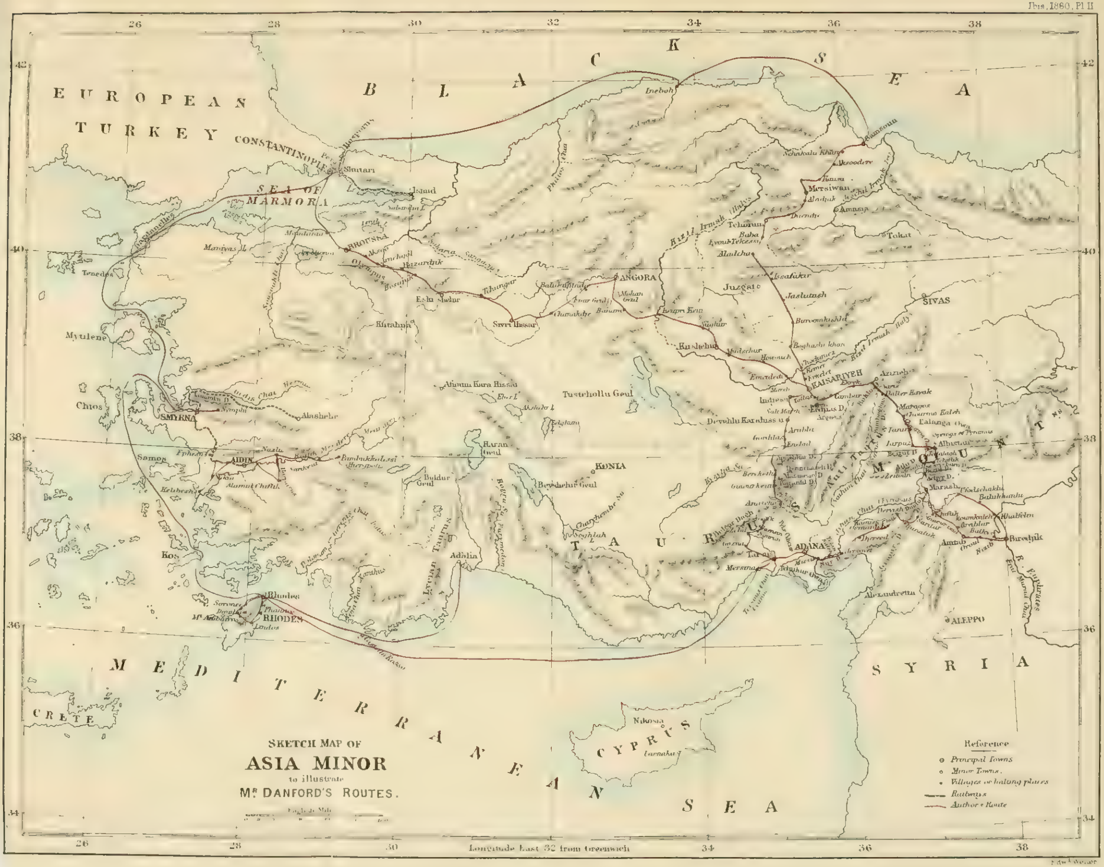
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M E D I T E R R A N E A N S E A
CRETE
CYPRUS
Nikosia
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Longitude East 32 from Greenwich
English Miles
Reference
⊙ Principal Towns
○ Minor Towns.
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SKETCH MAP OF
ASIA MINOR
to illustrate
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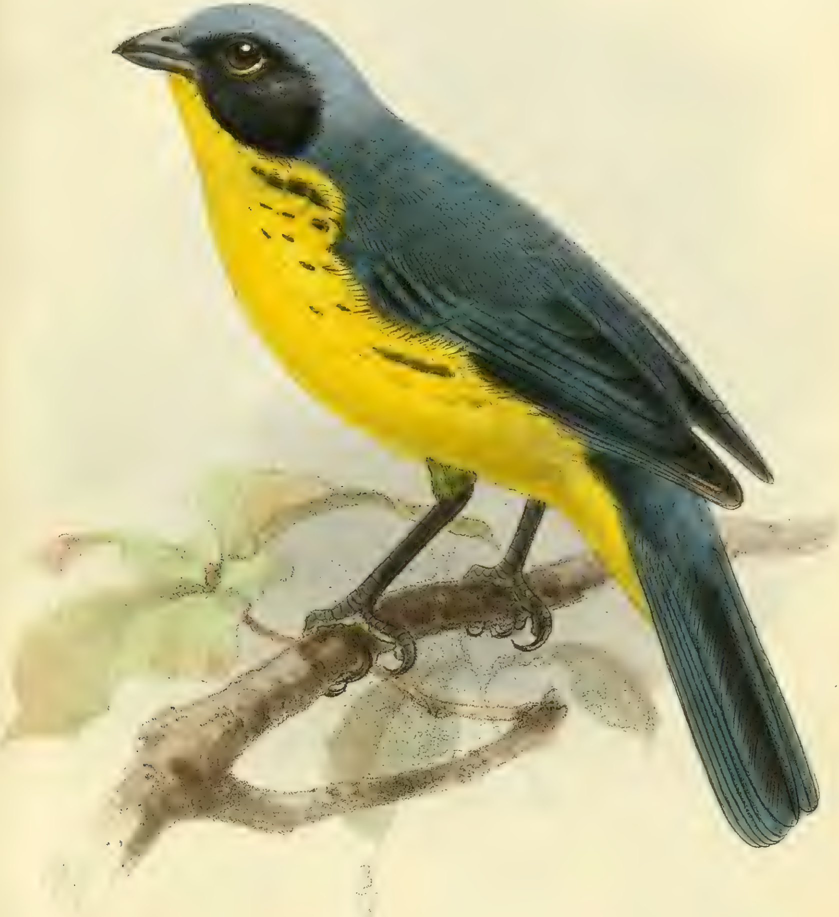

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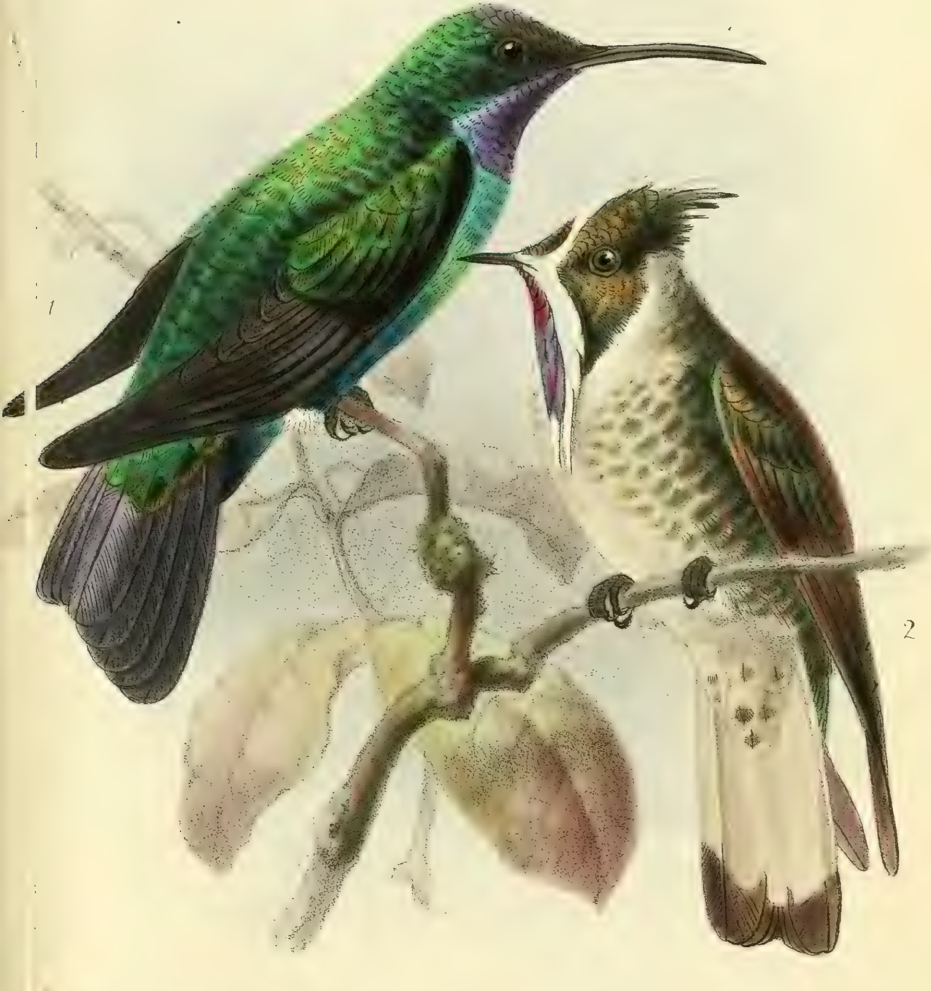

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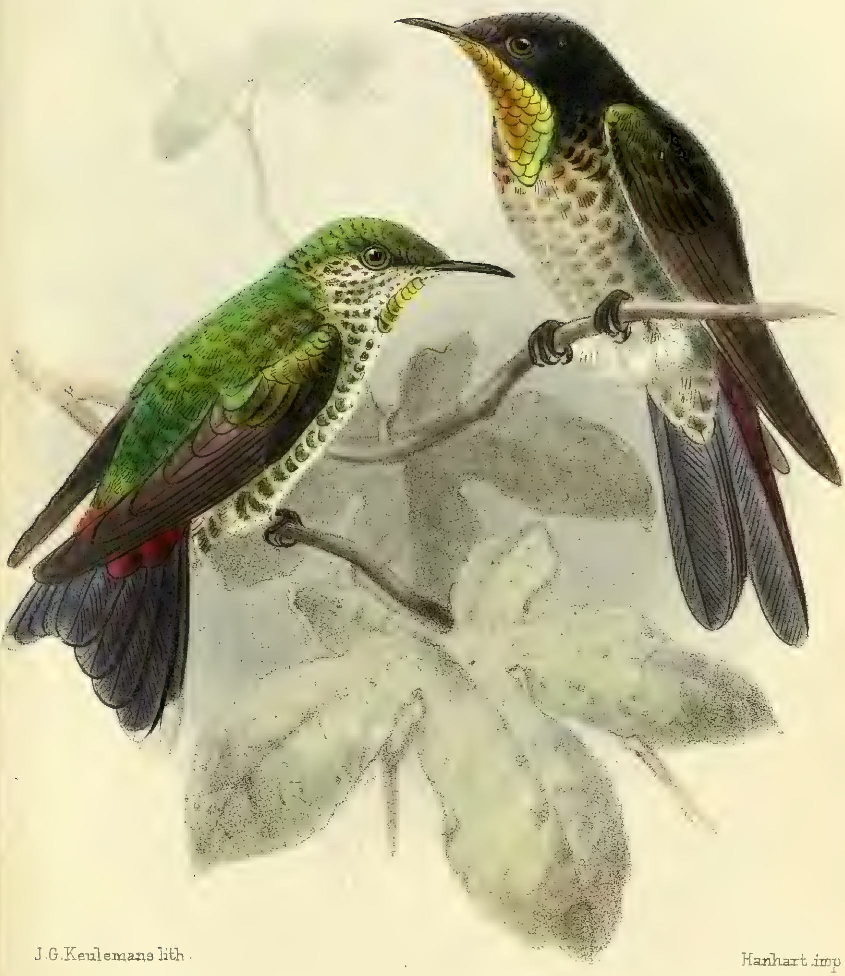
2. OXYPOGON CYANOLÆMUS.



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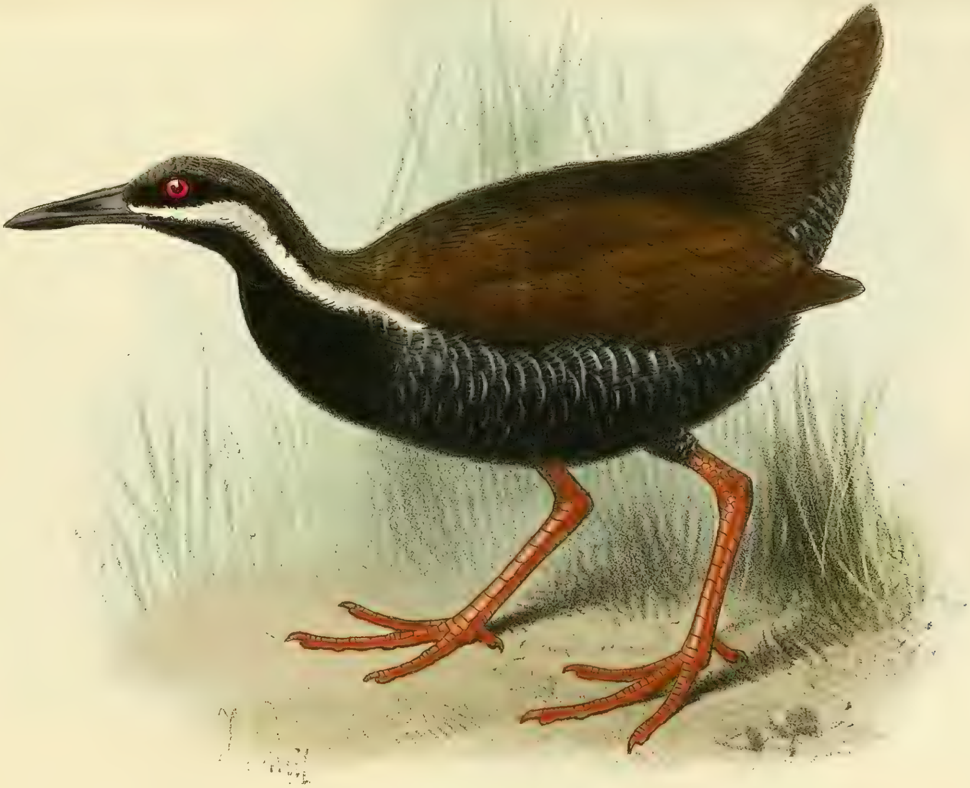

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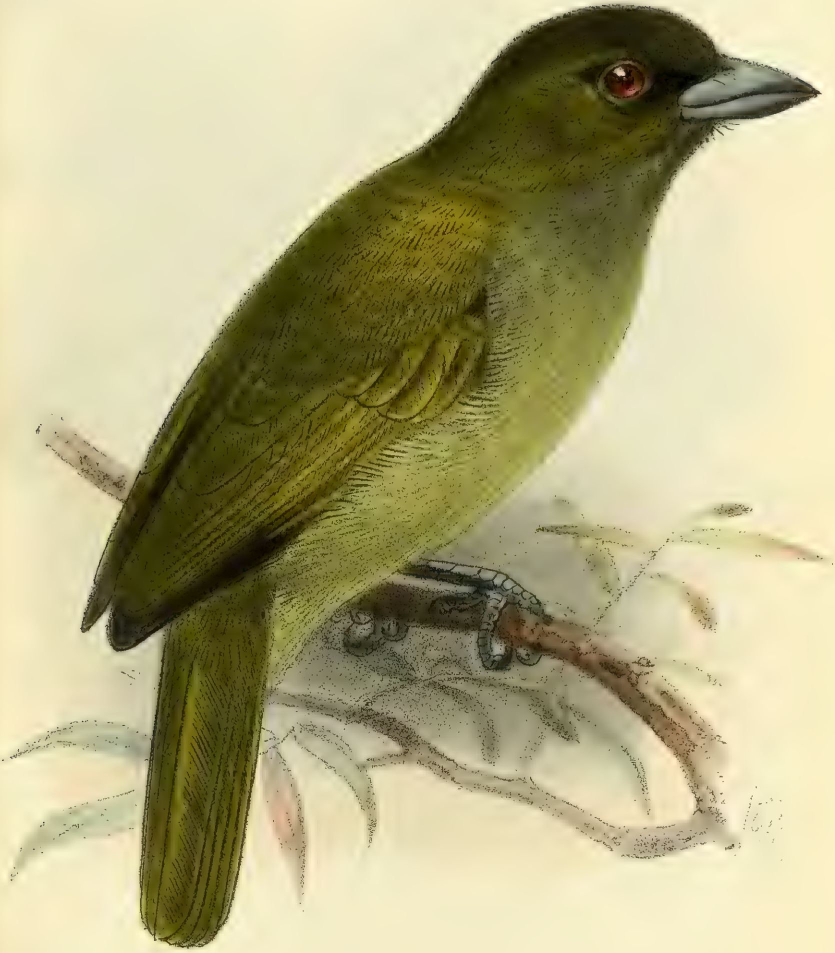

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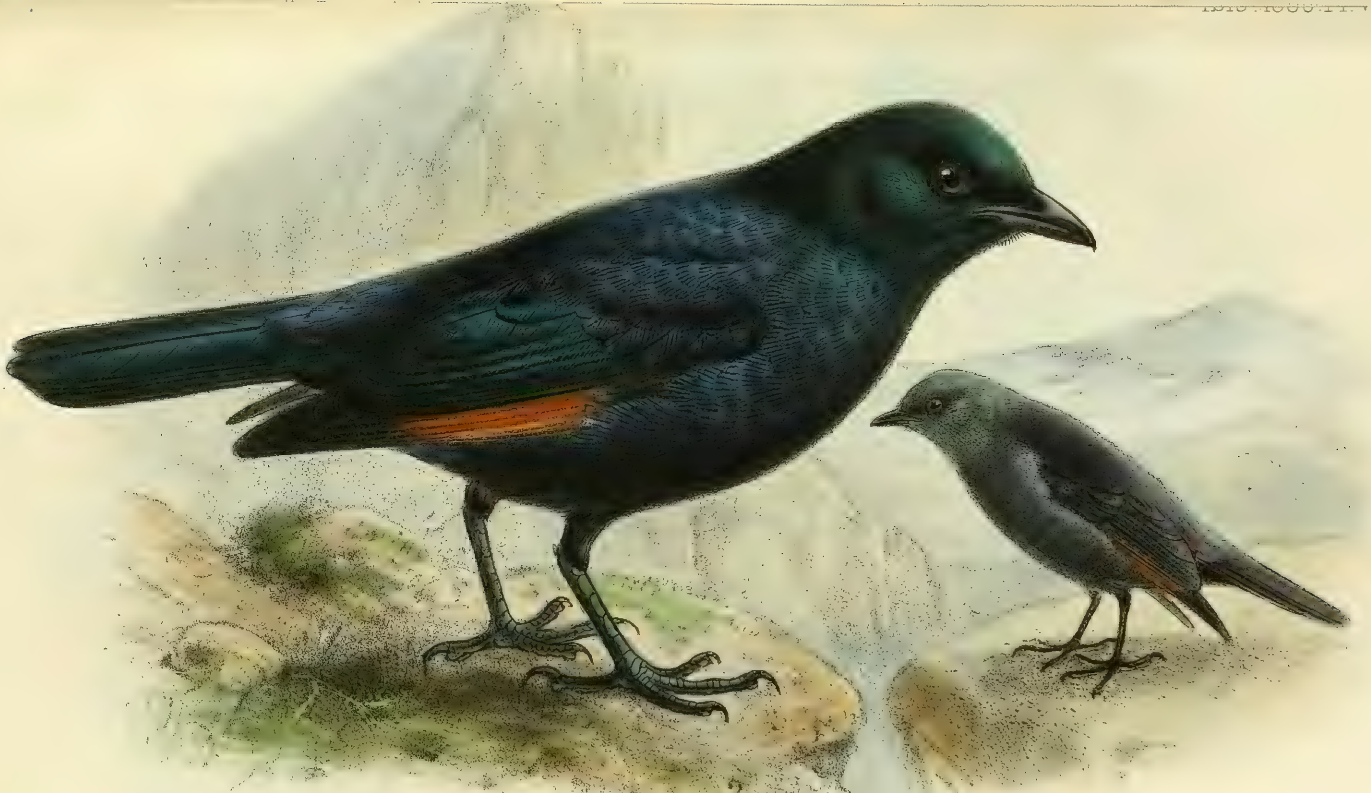

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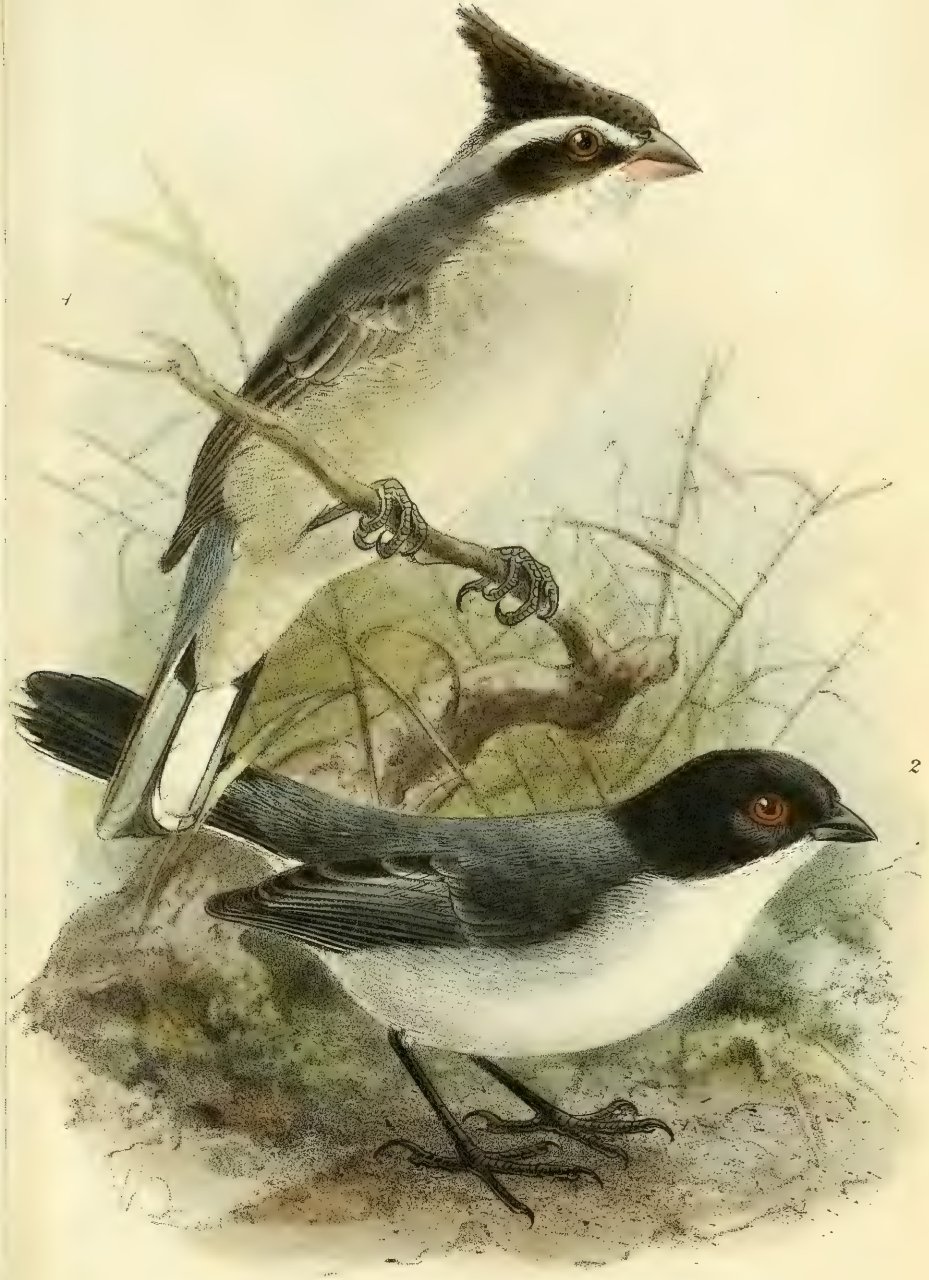
AMYDRUS WALLERI.



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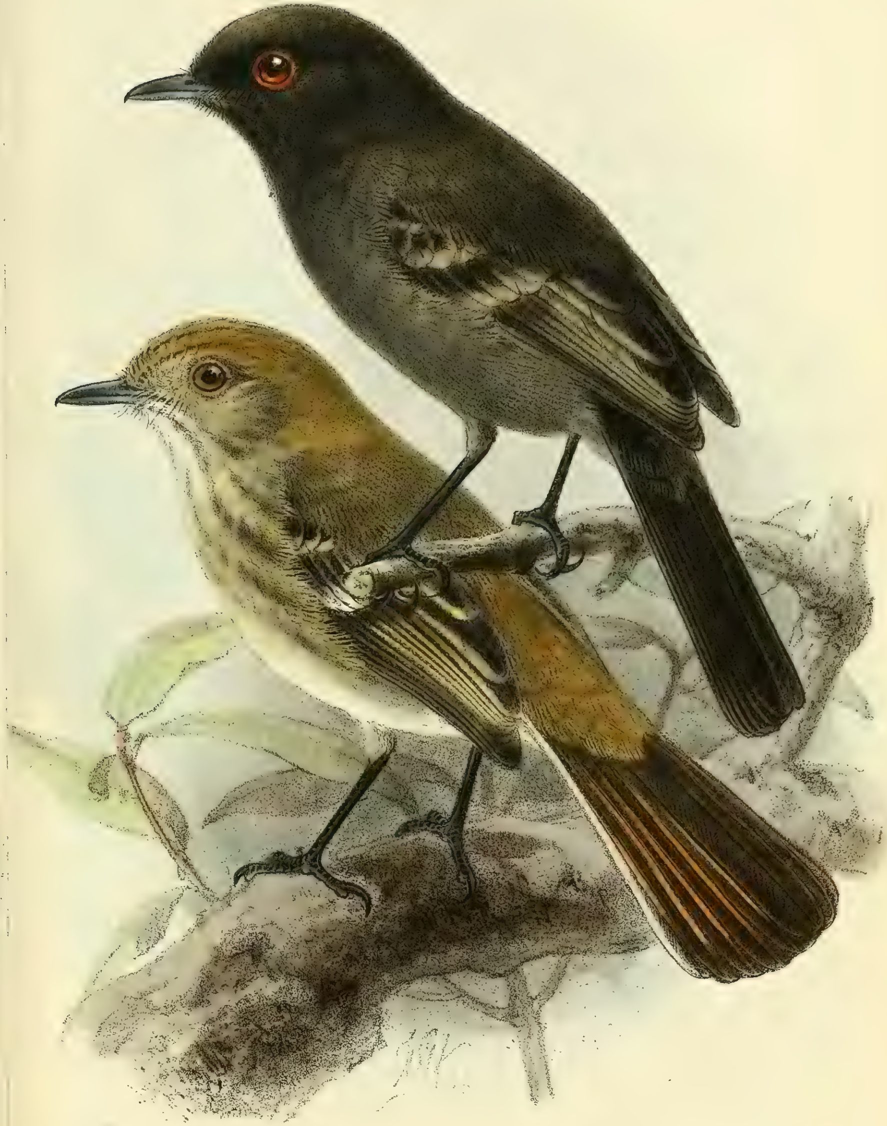
1. CORYPHOSPINGUS PUSILLUS.
2. POOSPIZA MELANOLEUCA.



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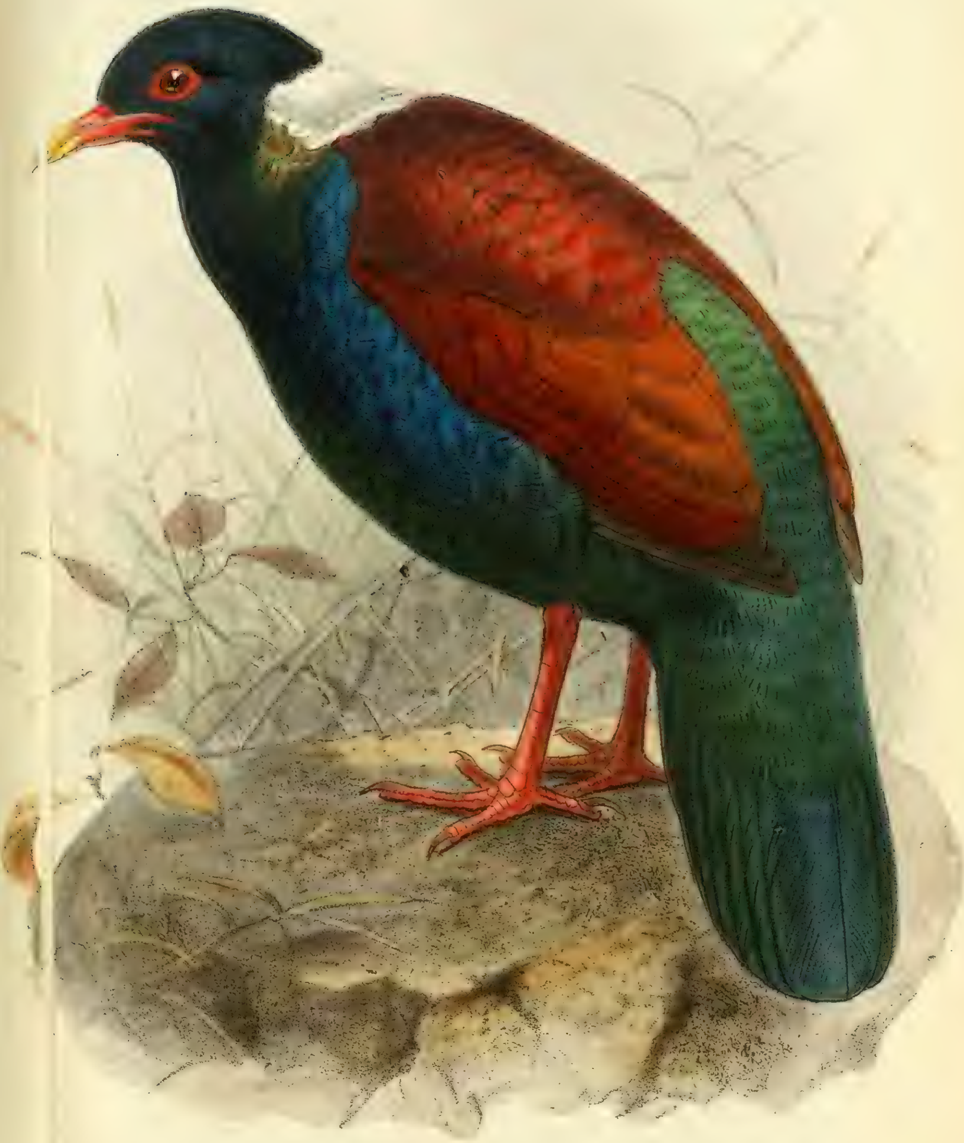
CNIPOLEGUS CINEREUS, ♂ et ♀.

Ibis 1880 Pl. XI



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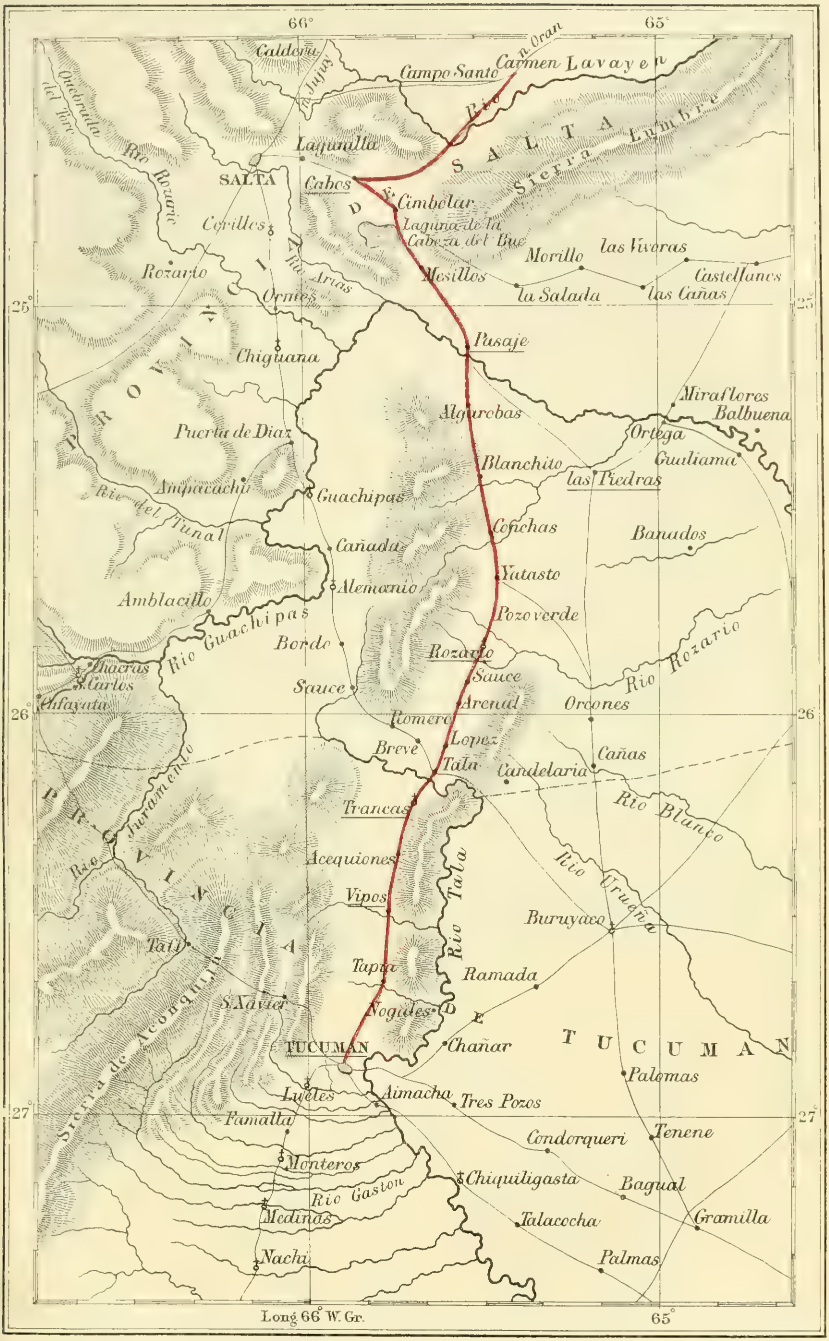
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65°
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Quebrada del Toro
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SALTA
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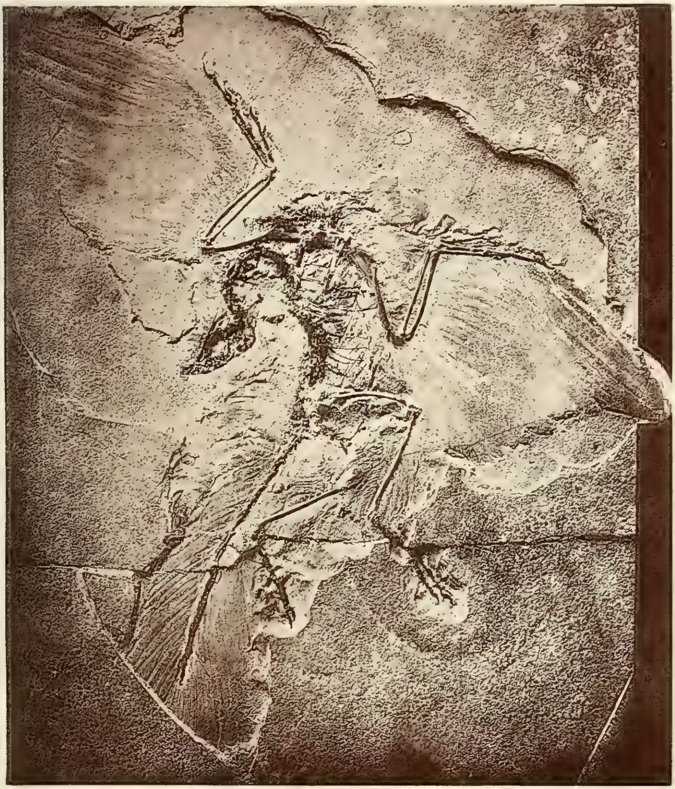

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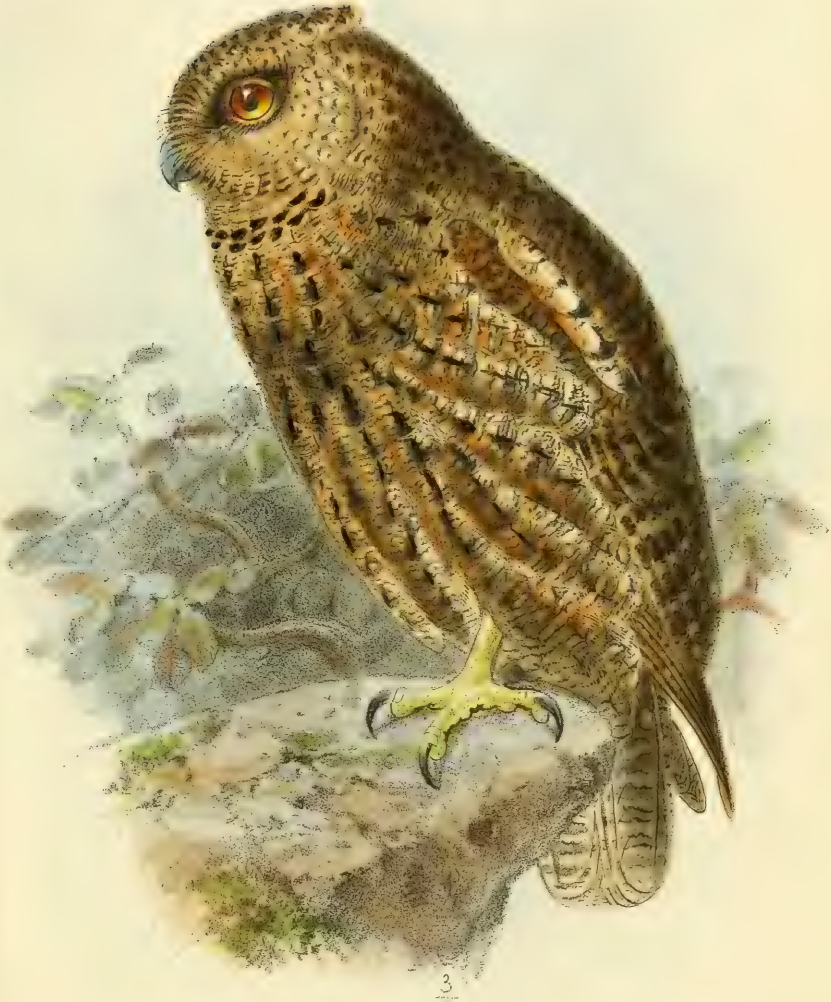

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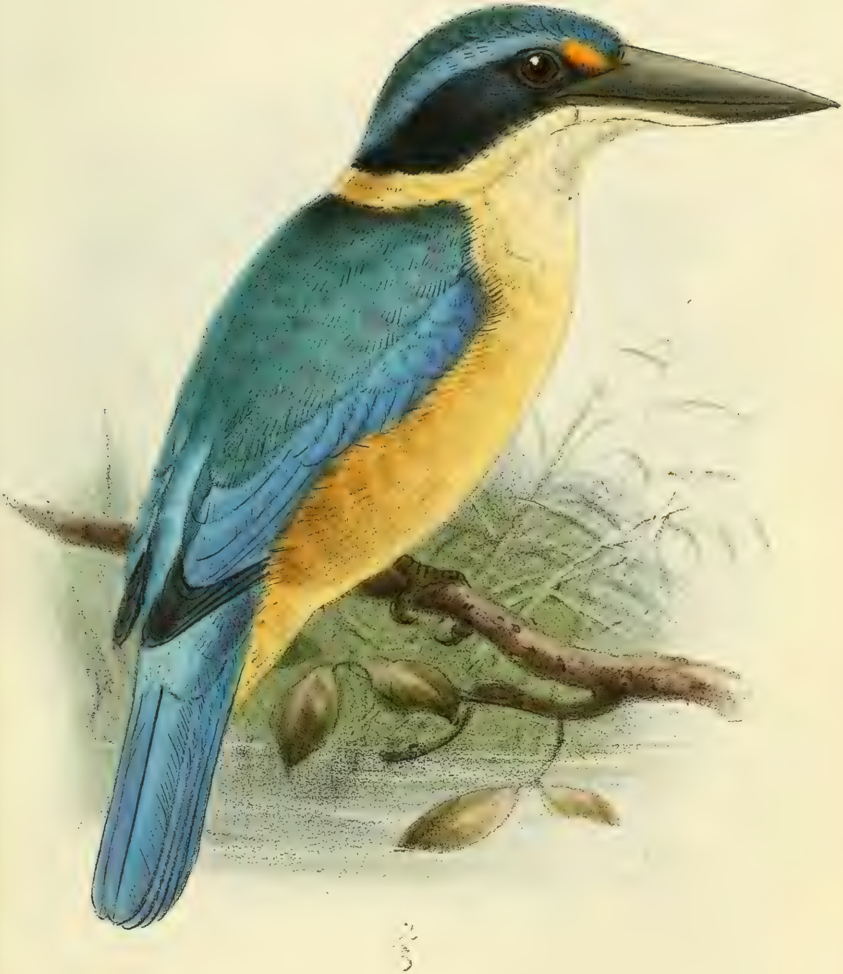

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A

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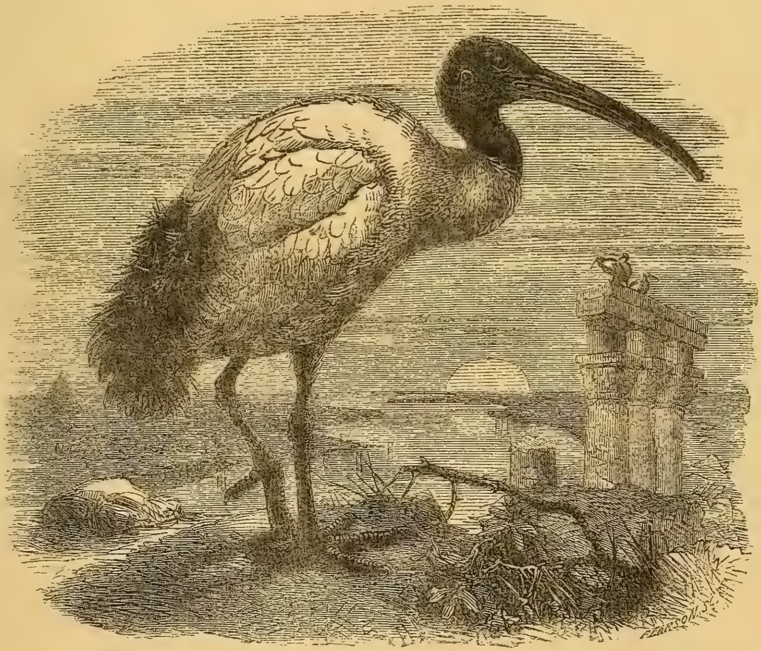

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1. Oustalet. Notes d'Ornithologie. (Bull. Soc. Philomat. Paris, 1879.)

2. Hutton. On a new Species of Penguin. (Proc. Linn. Soc. N.S.W. 1879.)

3. Bogdanow. Birds of the Caucasus. (Proc. Kazan Acad. viii. pt. 4, 1879.)

4. Coues. American Ornithological Bibliography. (Bull. U.S. Geol. & Geogr. Surv. vol. v. no. 2.)

5. Elliot. List of described Species of Humming-birds. (Smithsonian Misc. Col. no. 334.)

6. Ball, V., M.A. Jungle-life in India, or the Journeys and Journals of an Indian Geologist. London, 1880: Delarue & Co. 1 vol., 8vo.

7. Finsch, Dr. O. Reise nach West-Sibirien im Jahre 1876. Berlin, 1879. 2 vols., 8vo.

8. Oustalet, M. E. Catalogue Méthodique des Oiseaux recueillis par M. Marche dans son voyage sur l'Ogôoué, avec description des espèces nouvelles. (Nouv. Arch. Mus. sér. 2.) Paris, 1879.

9. Dole's List of Birds of the Hawaiian Islands. (Corrected from the Hawaiian Annual.)

10. Meyer's Index zu L. Reichenbach's ornithologischen Werken. 8vo. Berlin, 1879.

11. Salvadori. Prodromus Ornithologiae Papuasiae et Moluccarum. Part VIII. (Ann. Mus. Genova, xv.)

Covers for binding last year's Volume may be had on application to the Publisher.

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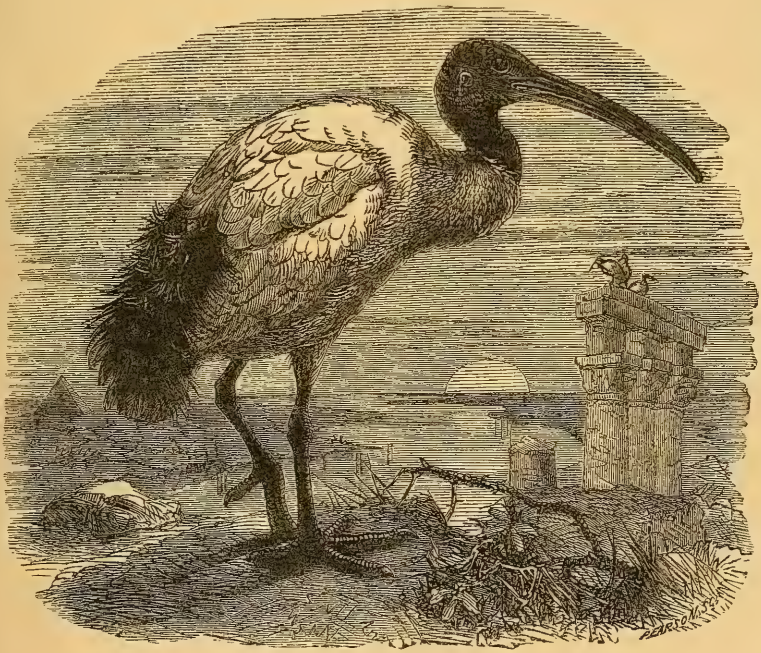

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1. RAMSAY. Notes on the Zoology of the Solomon Islands. Part I. (Proc. Linn. Soc. N. S. W. vol. iv.)

2. RAMSAY. Contributions to the Zoology of New Guinea. Parts IV., V. (Proc. Linn. Soc. N. S. W. vol. iv.)

3. Bulletin of the Nuttall Ornithological Club. Vol. IV. No. 4; Vol. V. No. 1.

4. FRENZEL. Ueber Fledermauspapageien (Gattung *Coryllis*). (Monatsb. d. deutsch. Vereins f. d. Schütze d. Vögelwelt.)

5. TACZANOWSKI. Liste des Oiseaux recueillis par M. Jankowski dans l'île Askold. (Bull. Soc. Zool. France, 1878.)

6. BUREAU. Recherches sur la Mue du Bec des Oiseaux. (Bull. Soc. Zool. France, 1879.)

7. BARBOZA DU BOCAGE. Subsidios para a Fauna das possessões portuguezas d'Africa occidental. (Jorn. Sci. Math. Phys. e Nat. Lisboa, 1879.)

8. AUGUST VON PELZELN. Ueber eine von Herrn Dr. Breitenstein gemachte Sammlung von Säugethieren und Vögeln aus Borneo. (Verh. d. k.k. zool.-botan. Gesell. Wien, 1879.)

9. AUGUST VON PELZELN. Ueber eine fünfte Sendung von Vögeln aus Ecuador. (Verh. d. k.k. zool.-botan. Gesell. Wien, 1879.)

10. BULLER. Remarks on the Long-tailed Cuckoo (*Eudynamis taitensis*). (Trans. N. Zealand Inst. vol. xi.)

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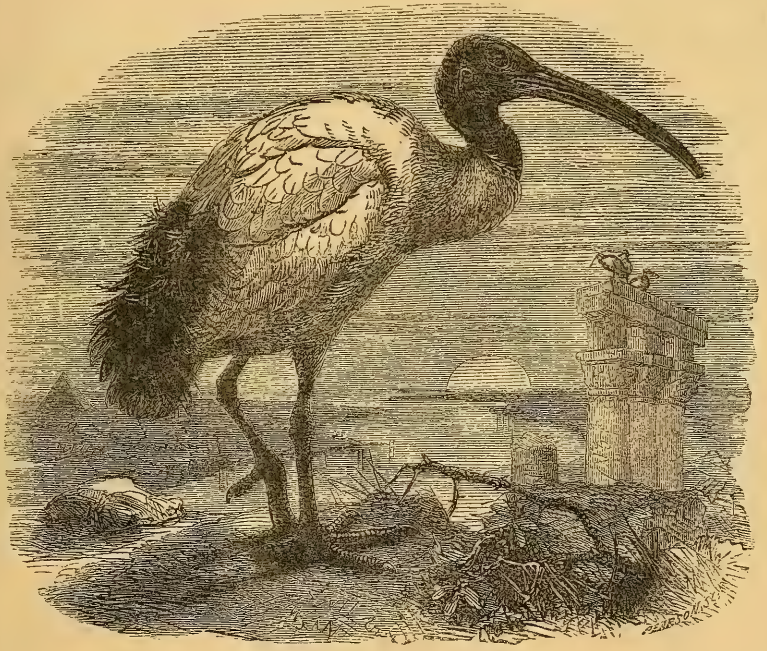

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2. Reichenow und Schalow. Compendium der neu beschriebenen Gattungen und Arten. Parts I., II. (J. f. O. 1879.)

3. Ridgway. Revision of Nomenclature of certain North-American Birds. (Proc. U.S. Nat. Mus. 1880.)

4. Salvadori. Di alcune specie del genere *Porphyrio*. (Atti d. R. Accad. Sci. Torino, xiv.)

5. Salvadori. Ornitologia della Papuasia e delle Molucche. (Atti d. R. Accad. Sci. Torino, xiv.)

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7. Stieda. Ueber den Bau und die Entwicklung der Bursa Fabricii. (Zeitsch. f. wissensch. Zool. Bd. xxxiv.)

8. Haswell. Notes on the Anatomy of Birds. (Proc. Linn. Soc. N. S. W. vol. iv.)

9. Finsch. Reise nach West-Sibirien in Jahre 1876. (Verh. d. k.k. zool.-botan. Gesell. Wien.)

10. Freke. Comparative Catalogue of Birds found in Europe and North America. (Proc. R. Dublin Soc.)

11. Sennett. Further Notes on the Ornithology of the lower Rio Grande and Texas. (Bull. U.S. Geol. Surv. v. pp. 371–440.)

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14. Harvie Brown. The Shiant Islands and their Bird-life. (Trans. Norf. & Norw. Nat. Soc. iii. pp. 47–60.)

15. Harvie Brown and Cordeaux. Report on the Nidification of Birds in the Autumn of 1879. (Zoologist, 1880, pp. .)

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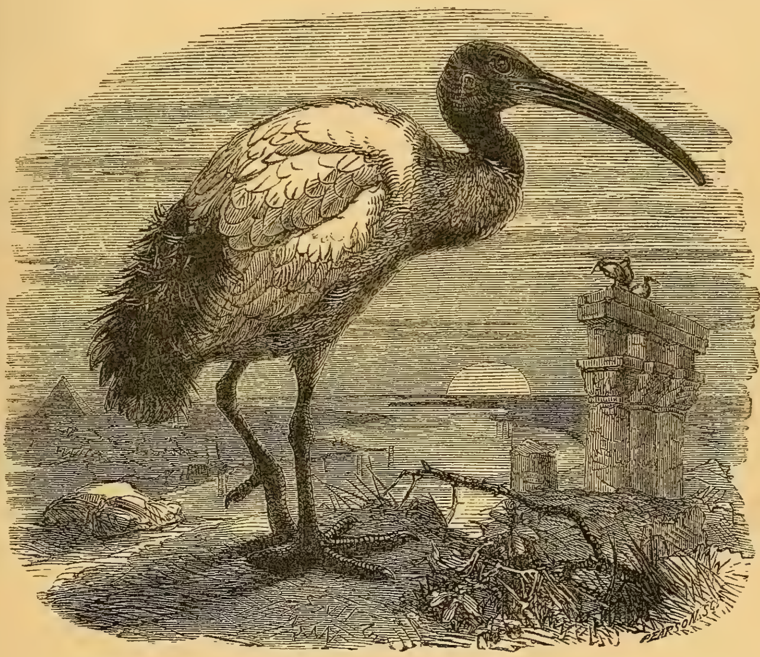

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1. Bocage. Birds of the Portuguese Possessions in West Africa (Nineteenth List).
2. Bocage. On a new African *Coracias.*
3. Harvie-Brown. Ornithological Journal of the Winter of 1878–79.
4. Harvie-Brown. The Capercaillie in Scotland.
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6. Stevenson. On the Pomatorhine Skua on the Norfolk Coast, 1879.
7. Rodd. Birds of Cornwall.
8. Desfontaines's Mémoire sur quelques nouvelles espèces d'Oiseaux de Côtes de Barbarie. (Reprint.)
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